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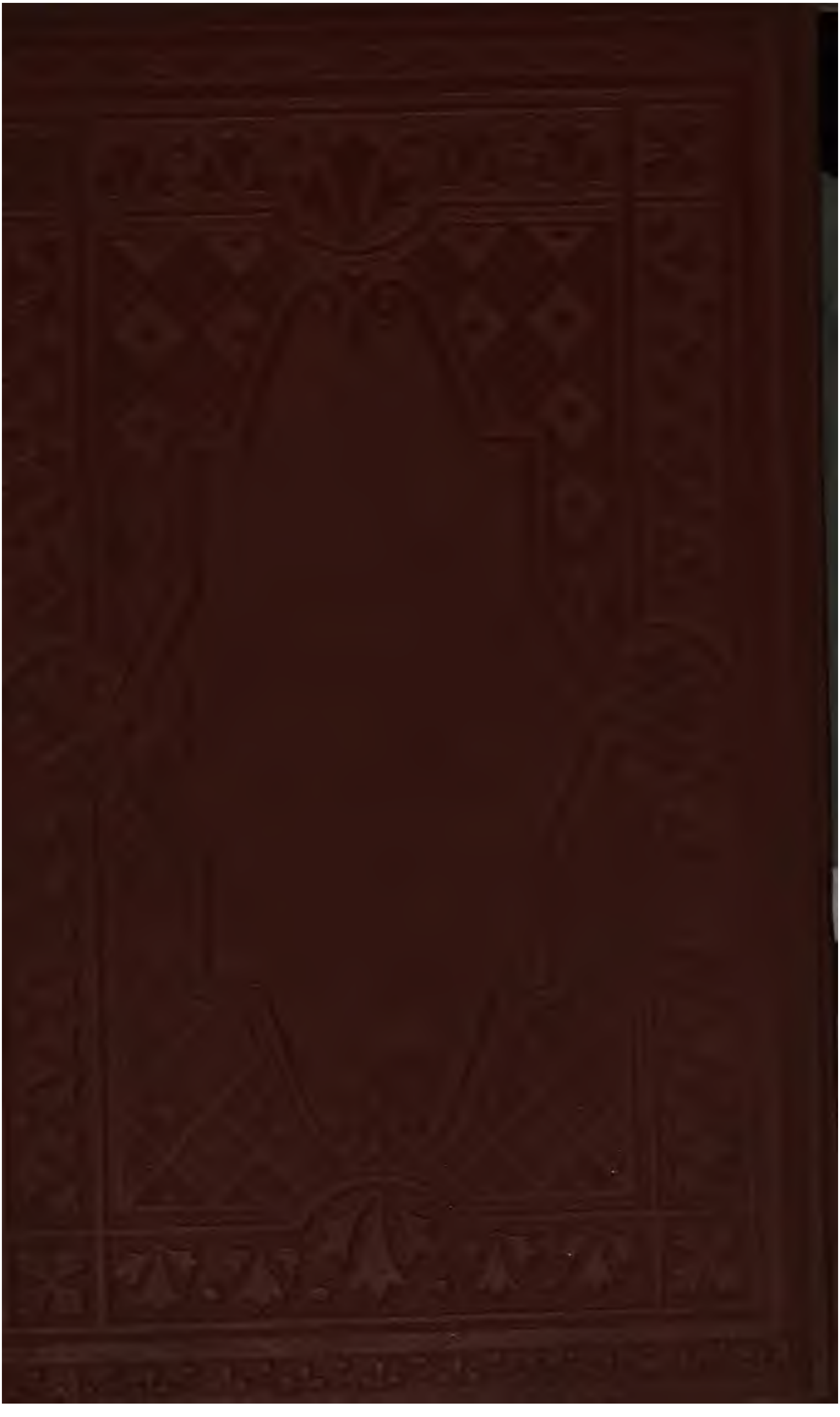

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THE

GENESIS OF THE ANGELS.

PETERHEAD:
PRINTED AT THE "SENTINEL" OFFICE,
BY SCOTT & WALKER.

THE

GENESIS OF THE ANGELS

AND THE

STORY OF THEIR EARLY HOME.

'God is a worker: He has thickly strewn infinity with
grandeur: God is love.'

BIBLIOTHECA · BODLEIANA ·

EDINBURGH:
WILLIAM P. NIMMO.
1868.

101 . f. 147 .

WORKS WHICH HAVE BEEN CONSULTED, AND FROM WHICH EXTRACTS HAVE BEEN MADE, IN THE PREPARATION OF THE WORK:—

Hoare's Veracity of Genesis; Kitto's Biblical Encyclopædia; Taylor's Indications of the Creator; Dick's Future State; Moore's Divine Authority of the Pentateuch; Ansted's Great Stone Book of Nature; Mill's Dream of Geology; Hitchcock's Religion of Geology; King's Geology and Religion; Brewster's More Worlds than One; Noyce's Outlines of Creation; Kurtz's History of the Old Covenant; Philip's Origin and Succession of Life; Milner's Gallery of Nature; M'Ausland's Sermons in Stone; etc., etc.

INTRODUCTION.

Among the many interesting questions of the present day, there are few to which Christians and Philosophers have directed more general attention than the harmony existing between the Scriptural and Geological Records of Creation, including the inquiry into the existence of a Pre-Adamite race of beings.

To reconcile the Bible History with the facts of Geology has been the task of several earnest Christians. To point out their apparent contradictions, and to urge seductive but dangerous theories, has been equally the task of sceptic Philosophers.

That the former have not been triumphantly successful has been mainly owing, among others, to the circumstance that Geology, as a science, has been firmly established only within the last half century—its facts collected and classified—and that, as each succeeding year, month, nay day, adds something important to our former knowledge of the subject, much is still wanting, and much that has been written, based on imperfect data, has been found inconclusive.

Again, many have avoided or glossed over the supposed discrepancies, by contending that the Mosaic narrative refers to another and later world than that of the Geologist —a period of time between the creation of man and the flood—or that the language employed is poetically, not historically, descriptive—or that our knowledge of the Hebrew, in which it was written, is too meagre to warrant certainty of exposition. Consequently, they have been afraid to interpret the text in any other manner than by the most close adherence to the words.

Where such men have to some extent failed, it may be considered presumption to "try another flight." It is to be hoped, however, that the additional light afforded by late discoveries, and a re-arrangement of facts brought to bear upon, and considered along with, the sacred text, may result in an acknowledgement of the Divine origin of the narrative, and that Geology is one of the severest tests of its truth and inspiration.

With many persons of piety and humble faith, it appears to be almost sinful—at all events, highly improper—to indulge in speculations, or to prosecute inquiry beyond what can be gathered in distinct terms from the Scriptures, forgetting that "Truth cannot contradict truth."

If the Mosaic Record be inspired—a revelation from the Almighty—it cannot be proved false. There can be no hostility between the unwritten Records appealing to the evidence of our senses, and the written Records appealing to our faith; and, as God is truth, His words will not refute His works.

Much of this adverse feeling is traceable to the clamour against human science, raised by those desirous to be reputed "pious persons," and very much owing to the pulpit declamations of ignorant clergymen who denounce all knowledge as worthless, or contrast it improperly with the knowledge "which is able to make us wise unto salvation." It is undoubtedly true that the knowledge of "Christ and him crucified" is, all in all, the most vitally important, and will endure for ever; but, if such preachers imagine "that all human knowledge is transitory and will perish" when this world comes to an end, they have read their Bibles and studied Theology to little good purpose—they are but "blind leaders of the blind." It is most painful to conceive such men glozing over their own ignorance — embellishing their discourses by specious rant—condemning what they do not understand, and, therefore, cannot appreciate—checking in their hearers the slender desires for the acquisition of knowledge, cramping mental exertion, and stifling inquiry. It is an undoubted fact that the majority of "regular church goers" are but ill acquainted, at best, with the oracles of religion, and too much inclined to consider even general knowledge useless; nay, that the listeners to such pulpit tirades soon come to consider that it is dangerous to pursue knowledge, other than can be easily acquired direct from the Scriptures.

Those ministers have read least, who utter the boldest declamations on this topic. The inspired writers never deter men from the study of creation and the glorious works of God, nor set up His word in opposition to His works. "For the visible works of God display the same essential attributes of Deity, and of His superintending providence, as the revelations of His word; and it is one great design of that word to direct men to a rational and devout contemplation of these works in which His glory is so magnificently displayed." And, therefore, to attempt to magnify the word of God by degrading His works, or to set the one in opposition to the other, is to attempt to set the Deity in opposition to himself, and to prevent mankind from offering a certain portion of that tribute of adoration and thanksgiving which is due to His name. When the Psalmist had finished his survey of the different departments of nature, he exclaimed (*Ps.* civ.):—"O Lord, how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches; *so is* this great and wide sea. . . . The glory of the Lord shall endure for ever: the Lord shall rejoice in his works. . . . I will sing unto the Lord as long as I live; I will sing praise to my God while I have my being."

In the present day, when the belief in inspiration of the Scriptures has been so boldly attacked, it behoves every thinking man who values "The Book" to examine the grounds on which that attack has been based, and not only to satisfy his own mind, but be able to "give a reason for the faith which is in him."

At all periods of the world's history, there have been sceptics, if not infidels. In none, more than in these days, have more persistent and more insidious attacks been made on the Christian's faith and hope. It is, therefore, a duty to resist and, if possible, vanquish them.

If the very first page on which the Christian rests his belief is found untrue, the infidel has conquered. If, however, it be found in spirit—nay, almost in letter—true, as regards the order and progress of creation confirmed by the Stony Record, then the authenticity, authority, and inspiration of the Bible History becomes, if possible, more clearly proved, and on other all-important points, more reliable and undoubted.

The Bible does not pretend to teach science, properly so called—if it had done so, it must have become a text book in Natural Philosophy rather than a guide to eternal life—and yet, although given to teach us other truths, it contains much which science of late years has proved true, but which was disputed by generations of philosophers, equally certain and persistent in the soundness of their own views as those of our day. Being the production of Him who is Omniscient—who is truth—it cannot contradict what is scientifically or morally true.

A very few examples may be adduced. It was for ages an article of faith in Physical Geography that the world was a flat plane, yet the Psalmist, writing of the earth, called it the "round world;" and the Prophet Isaiah says (xl., 22) "*It is* he that sitteth upon the circle of the earth."

This description was held to be a contradiction of fact until the circumnavigation of the globe proved the Bible and Christian Philosophers right. "He hangeth the earth upon nothing," says *Job* xxvi., 7. What have the Astronomer and Philosopher proved regarding its suspension in space? That the words of Job are literally true.

"The existence of the electric fluid was known to the sacred writers. They spoke of it as pervading all space and all bodies, and as kindling the heavens with fire, by which the Almighty traced His path in the thunder and regulated the course of the tempests. It is but of late years, however, that man has asserted his control over this element, and made it do his bidding. Solomon said 'that God gave to the air its weight, and to the waters their just measure;' yet it was not until recently that science proved the air to be a ponderable body, and learned the just measure of the waters. Job first announced the existence of a central fire in the earth, and science proves it by the natural phenomena discovered."

Many sincere Christians and Commentators understand when the Apostle Peter describes the destruction of the material universe by fire (2 *Peter* iii., 1—13); he means annihilation will ensue—a common opinion of the effects of combustion. But science insists that fire only changes the form of substance, and that no such result can ever take place as annihilation.

Are we, therefore, to suppose the Apostle teaches an untruth, because he did not understand modern Chemistry?

Certainly not. He only means that all that is on the earth will be burned up, and that the elements will melt with fervent heat; but nowhere asserts or implies that one particle will be annihilated.

But, strange to say, the language of the Apostle is peculiarly applicable to the discoveries made by modern Chemistry, and that in a way which no uninspired writer could have employed. The atmosphere is represented as passing away with a great noise—an effect which the Chemist would predict by the union of the oxygen with the other gases liberated by the intense heat. But more critically and chemically correct still, he declares the elements of the earth will be melted. The Chemist finds that the greater part of the earth has been already oxidised or burned, and on this the effect of the heat must be to melt it. A sceptic Chemist cannot now say the Apostle wrote in ignorance and without inspiration. The passage, 2 *Peter* iii., 7, appears not only to describe the origin of the fire by which the earth will be destroyed, but to give a clue to the home and existence of those forces by which the crust of our globe has been remodelled. "But the heavens and the earth which are now, by the same word are kept in store, reserved unto fire—(*τεθησαυρισμένοι εἰσὶ πυρι τηρούμενοι*) perhaps better rendered without the stop after *εἰσὶ*, 'are stored with fire reserved'—against the day of judgment and perdition of ungodly men."

The Bible clearly teaches the resurrection of the body; and it has been objected that this doctrine is impossible, because the body laid in the grave is resolved into its elements, and finally enters into multitudinous new combinations, forming parts of other various and even similar bodies. Chemistry and Natural History teach us the true nature of bodily identity, not as existing in sameness of particles, but in the same kind of elements, combined in the same proportion, form, and structure. Science thus vindicates revelation, and Paul's description (1 *Cor.* xv., 12, 35—38) will be perfectly understood by the man of science, in the same way as he understands the resurrection, in the spring, of plants and flowers which seemed to wither in the autumn frost, and die in the winter's storm.

"Canst thou bind the sweet influences of Pleiades?" *Job* xxxviii., 31. "Astronomers of the present day," says Lieut. Maury, LL.D., "if they have not answered this question, have thrown so much light upon it as to show that, if ever it be answered by man, he must consult the science of Astronomy. It has been recently all but proved that the earth and sun, with their splendid retinue of comets, satellites, and planets, are all in motion around some point or centre of attraction inconceivably remote, and that that point is in the direction of Alcyon, one of the Pleiades! Who, but the Astronomer, could tell their sweet influences? And, as for the general system of atmospherical circulation which I have been so long endeavouring to describe, the Bible tells it all in a single sentence—'The wind goeth toward the south and turneth about toward the north; it whirleth about continually, and the wind returneth again according to its circuits.'"

There are many other facts bearing on the question of Biblical Science which might be stated, but they would lead us too far from our proper subject.

Where discrepancies apparently exist between Scripture and Science, it must be borne in mind that the necessity existed of making the language employed intelligible to mankind in every country, and under every condition.

On this head, Whewell admirably illustrates this argument. "Science," says he, "is constantly teaching us to describe known facts in new language; but the language of Scripture is always the same. And not only so; but the language of Scripture is necessarily adapted to the common state of man's intellectual developement in which he is supposed not to be possessed of science. Hence the phrases used by Scripture are precisely those which science soon teaches man to consider inaccurate.

"Yet, they are not on that account the less fitted for their proper purpose; for, if any terms had been used adapted to a more advanced state of knowledge, they must have been unintelligible among those to whom the Scripture was first addressed. If the Jews had been told that water existed in the clouds in small drops, they would have marvelled that it did not constantly descend; and to have explained the reason of this, would have been to teach atmology in the sacred writings.

"If they had read in the Scripture that the earth was a sphere, when it appeared to be a plane, they would only have been disturbed in their thoughts, or driven to some wild and baseless imaginations by a declaration, to them, so strange.

"If the Divine speaker, instead of saying that he would set his bow in the clouds, had been made to declare that he would give to water the property of refracting different colours at different angles, how utterly unmeaning, to the hearers, would the words have been! And in these cases, the expressions being unintelligible, startling, and bewildering would have been such as tended to unfit the sacred narrative for its place in the providential dispensations of the world."

The history of Geology, as a science, is very short but interesting. Earnest students have collected and classified its facts, and that so rapidly that it has already attained a high position among the inductive sciences. The manner in which the history of the primeval earth has been traced out exhibits one of the most brilliant intellectual triumphs of humanity; yet, still Geology is but comparatively in its infancy, and therefore it is the more necessary to watch carefully against being led astray by false lights, or stranded on shifting conclusions.

The inspired writer of the Pentateuch, no doubt, obtained and possessed the most transcendent ideas of creation, including "the heavens and the earth;" but it was of man in his various states—past, present, and future of whom and for whom he was to write—whom God made a little lower than the angels, whom He crowned with glory and honour, and for whose redemption He sent His only Son to suffer and to die.

Scripture does not teach Geology more than any other science, and whatever light it may throw upon it incidentally is in subservience to another and higher aim. Buckland says—"The disappointment of those who look for a detailed account of Geological phenomena in the Bible rests on a gratuitous expectation of finding therein historical information respecting all the operations of the Creator in times and places with which the human race has no concern. As reasonably might we object that the Mosaic history is imperfect, because it makes no specific mention of the satellites of Jupiter or the rings of Saturn, as feel disappointment at not finding in it details of Geology which may be fit matter for an encyclopædia of science, but are foreign to the objects of a volume intended only to be a guide of religious belief and moral conduct."

To encourage inquiry—and, it is to be hoped, to remove doubts—to reconcile His written word with the narrative given by His works, is the great object of these pages—premising that no passage of Scripture shall be unduly interpreted, and no fact in Geology ingeniously twisted to support conclusions.

"It follows," says Dr J. Pye Smith, "as a universal truth that the Bible, faithfully interpreted, erects no bar against the most free and extensive investigation—the most comprehensive and searching induction. Let but the investigation be sufficient and the induction honest, let observation take its furthest flight, let experiment penetrate into all the recesses of nature, let the veil of ages be lifted up from all that has been hitherto unknown—if such a course were possible—Religion need not fear, Christianity is secure, and true Science will always pay homage to the Divine Creator and Sovereign, of whom, and through whom, and to whom are all things, and unto whom be glory for ever."

CHAPTER I.

WITHOUT entering into the question of the origin of *matter*, which is really beside our enquiry, it will be needful to examine the structure of the earth, and having acquired this knowledge, then compare the account as given in Genesis with the facts disclosed.

Of the origin of the earth various theories, more ingenious and imaginative than solid, have been advanced. Burnet, Woodward, Whiston, Hooke, with many others, have endeavoured to support the Mosaic Cosmogony by arguments which are mostly untenable. Whiston supposed our earth to have roamed for ages through space,

> "A wandering mass of shapeless flame,
> A pathless comet;"

until, at the period of the Mosaic creation, its revolution was bridled and regulated to that of a planet.

Buffon, Laplace, and Leibnitz agree that its primal state was igneous—indeed, it would be wearisome to read even a digest of the numerous theories which have appeared and vanished like meteors. Most of the many, however, were dreams of fancy, unsupported by scientific facts, and being so, they fell and died with their authors.

It is now supposed that our planetary system formed one huge mass, from which the Earth and other planets, detached by Almighty power, have been precipitated into space, and made to roll around the sun in their several orbits, and with such velocities as seemed in His wisdom necessary.

Accepting or rejecting this supposition, there seems no reason to doubt that our Earth was originally an incandescent mass of fluid matter. That such was its condition is not only the opinion of the ablest philosophers, but the idea is well supported by evidence; and it is one which explains much which otherwise would be inexplicable in Geological Phenomena, as well as makes clear certain obscure passages in the Mosaic recital.

The form of the Earth—that of an oblate spheroid, flattened at the poles, with a difference of 26 miles between its polar and equatorial diameter—is the very form which a similarly sized fluid mass would acquire in revolution round a fixed axis, "revealing," says Humboldt, "its earlier condition, an ellipsoid of revolution, indicating a once soft and fluid mass."

Other evidences are not wanting—such as volcanoes and their ejection of molten matters, gases, boiling water, and mud. Thermometrical observations made in deep mines, and the temperature of water brought up from Artesian wells, prove not only the existence of internal heat, but by the regularity of the increase of temperature as we descend into the body of the earth—namely, one degree for every 50 feet—would go to prove by analogy that at a depth of 21 miles we should arrive at a still burning central mass.

The once popular and long entertained notion that the substance of the Earth is a confused agglomeration of various rocks, soils, and minerals, simultaneously brought into existence by one act of creation, has long been exploded as opposed to facts. These rocks, soils, minerals, and their imbedded fossil, or rather organic remains, that form the crust of the Earth, are arranged in distinct layers or beds, spread out one above the other, and so to speak form the leaves of the Geological volume.

The coverings which envelope an onion very well illustrate the manner in which the globe is formed, subject, however, here and there to gaps or rents in the coverings, arising from the action of various forces, such as water, floods, earthquakes, and volcanoes, which, directed on its surface or from its interior, have disturbed and deranged in many places the regularity of the stratification, as regards direction but not relative position. The relative position of the strata is the same over the whole earth. A portion of any one stratum may, however, be wanting in certain situations—indeed, may never have been deposited, simply because the needful conditions for its formation did not prevail in that locality while the general deposition was taking place over other portions of the earth.

In the case of aqueous deposits made in the neighbourhood of dry and elevated land, the stratum deposited would be found in the ocean bed when the waters had retired, or sea and land changed places, as they have repeatedly done; but could not be found on what was the land while the deposition of the materials which formed the stratum was going on. Here and there a flood may have torn away a portion of the leaf from the book, but its ragged edges will be inevitably discovered on either or both sides of the rupture at greater or less distances from each other. The stratum is in such a locality wanting, not because it may not have been present, but because an irresistible power has torn out a portion of the leaf. Again, an earthquake may, in its mighty surgings and heavings, have dislocated and disturbed the stratification within the area where it raged, and may have tilted the leaves up into innumerable angles from the horizontal, or produced gentle undulations like the long heavy swell of the ocean; still the leaves, though torn and rumpled, are there in unvarying order, and once existed in horizontal symmetry, if the materials have been deposited.

Again, the Volcano, by a force unconfinable, may have burst the bands which overlapped its prison, and surged up through several, or the whole of the strata, the lowest or granitic formation—mayhap, too, accompanying the mass with floods of lava and other molten matter—still the various strata will be found. Seek for them on the mountain sides thus formed, or at their bases; they will be discovered resting one upon the other more or less disturbed, it may be, according to the force exerted and the mass elevated, but still in their known and unvarying relationship, in the same relative order of super-imposition.

The various formations have been divided into three great classes—Primary, Secondary, and Tertiary.

THE PRIMARY COMPRISES—

The Cambrian formation, estimated at 26,000 feet in thickness, and reposing on the metamorphic rocks or transformed (from μετα μορφὴ, suggested by Sir Charles Lyell as a name for rocks which he was the first to regard as stratified rocks altered by igneous agency), beneath which is granite, the depth of which has not yet been ascertained.

		Feet thick.
The Silurian, Slate formation,	estimated from	7000 to 30,000
The Devonian, Old Red Sandstone,	„	5000 to 9000
The Carboniferous, Coal formation,	„	7000 to 10,000
The Permian, New Red Sandstone,	„	1500 to 2000

THE SECONDARY COMPRISES—

The Oolite and Lias, Limestones,	estimated from	1900 to 2500
The Cretaceous, Chalk,	„	1500 to 6000

THE TERTIARY COMPRISES—

All the superficial deposits,	about 2000 feet thick.

For the better understanding of the terms employed by scientific men, and by which it is agreed the different strata should be known, it is well to explain that the Cambrian and Devonian systems are so named because most highly developed in Wales and Devonshire. The Silurian, from the locality once inhabited by the ancient tribe Silures, extending through the greater portion of South Wales. The Permian, from the ancient kingdom of Perm in Russia, where it is seen under favourable circumstances; and the Oolite, from its resemblance to the roe of a fish—ὦὸν, an egg, λιθος, a stone, literally stone eggs—a conglomerate collection of spheroids. The Cambrian has also been called Azoic, or without life, from no fossil remains of once living organisms having been found therein.

The various strata are also divided into two grand classes—the Igneous, resulting from the operation of heat, which has crystallized the materials in the process of cooling, and by which they are of course unstratified, and the

Aqueous, or stratified, resulting from water-borne sedimentary deposits, mostly in layers of sand, clay, pebbles, &c., subsequently hardened by superincumbent pressure of after deposits and the action of subterranean heat.

There are differences of structure, such as slate, chalk, coal, arguing different circumstances of deposit; and rocks produced under seas are distinguishable from those deposited in lakes and estuaries by the fossils contained in them, some being inhabitants of salt and others of fresh waters.

The question which next arises is—from whence has the substance of these rocks been obtained?

Beginning with the Granitic Crust, which was the infant condition of the globe, the disintegration of the granite base would be copious and rapid, arising from the internal heat, volcanic action, ejection of superheated steam, gases, mud, and chemical combinations of liquids, aided by the ceaseless wash of waves, hourly deepening and increasing in volume as refrigeration went on in the body of the earth. The particles thus set free, caught up by the water, carried away by tides and currents, and deposited in other localities, became hardened and altered by heat and pressure, and assumed the state which, when time and physical revolutions have passed over them, has left them for us as leaves of Geological History. That the later rocks have been formed from the granite, it is only requisite to bear in mind its chemical component parts, quartz or silex or flint, felspar or alumina or clay, mica and hornblende. A single glance at gneiss (whinstone), or the metamorphic rocks, will prove this; and, in one or other proportion, every succeeding layer, on analysis, will be found a deposit of one or more of these fundamental substances. Whilst strata in their component parts are thus distinguished from each other, we find, besides, that each contains imbedded therein a distinct series of the remains of animals and vegetables converted more or less into stone. These were living inhabitants of the globe at the time each layer was deposited, and afford a key to the climate, the character of events, nature of life and habits, and the gradual development of all from a state of comparative turbulence and chaos to peace and order.

It is not to be understood that the Flora and Fauna of any one period or stratum are entirely different from those above or below, or from every other stratum, but simply that, taken as a whole, each formation differs from the one above or below it. We thus obtain a correct view of the gradual and beautiful successive creations of animals and vegetables, fitted for the progressive changes which follow each other on the surface of the globe, and some faint idea of the vast periods during, and in which these creations and changes were effected. We can, as it were, ascend the stream of time to a point when our world was lifeless and pulseless; and, astonished at His Almighty power, "walk with God," sharing His counsels, ere yet His creative spirit had poured vitality on a scene now revelling in life, and beauty, and perfection.

Chemistry, Botany, Mineralogy, and Physical Geography have each and all assisted in enabling us to unfold and restore the history of the primeval earth, but it is to Comparative Anatomy that the principal merit is due. Where a single fossil bone is found, Cuvier, Owen, and others can restore the entire animal, however large or strange the form—whatever might have been its nature or habits. "Every organised individual forms an entire system of its own, all the parts of which mutually correspond and concur to produce a certain definite purpose by reciprocal reaction or combining towards the same end. Hence, none of these separate parts can change their forms without a corresponding change in the other parts of the same animal, and consequently each of these parts taken separately indicates all the other parts to which it has belonged." Thus the Megatherium and the Pterodactyle are restored to us, and their forms are as familiar, their habits as well known, as animals of our own time. Where bones have been wanting the strata often bear impressions of their forms. The footprints of birds and reptiles are stereotyped on the soft clay or wet sand; the worm track, the scratching of a crab, are all imprinted; nay, the rain drops of the shower which fell on the yesterday of millions of years past, and the ripples of the wavelets are indicated, telling the very direction of the wind when the rain drop fell and the tiny wave yielded to its impulse. Each and all of these assist in our survey of the wondrous scene of creation, and our examination of that "Stone Book" which geology has unfolded.

CHAPTER II.

EVEN a very slight and cursory examination of the various strata will result in the conviction that certain powerful agencies have been steadily at work in order to produce the changes effected.

It will be well to consider some of these influences by which the crust of the earth has been, and still is being changed. These may be arranged under the following heads :—

Light.—Producing changes in the animal and vegetable kingdoms and in the chemical compositions of their remains, and consequently of substances into which these enter into new combinations.

Heat.—The unequal action of the sun arising from the varying distance of the earth, producing increase and decrease of heat in the portions presented to the calorific rays.

Subterranean heat produces a gradual change of the general level of certain parts of the land, such as on the shores of the Baltic; and, though yet not distinctly ascertained, in all likelihood corresponding depressions in the bed of the ocean.

The action of the internal heat may be described as follows :—Curves traced on the map or globe so that each shall pass through localities where the mean annual temperature is the same, are called Isothermal lines. The positions of these lines must rise if imperfectly conducting sediments are continually deposited in their tract, because there the radiation of the heat is diminished until the interior heat approaches the surface. When it does so, an expansion of the subjacent earthy substances takes place, the seashore rises, and is gradually increased by the addition of sediment deposited by watery action. This regular uprising, though slow, is continuous.

Earthquakes, though irregular and the most terrible of all natural phenomena, produce the most sudden and surprising changes. "They break up the crust of the earth, elevating it here into hills, depressing it there into valleys, seaming it with rents and fissures, from which often arise products never before known in the district, altering the course of rivers, producing new shores and beaches, raising the sea bottoms to become dry land, and depressing the richly-wooded land to become henceforth the bottom of the sea, leaving cities that overhung the ocean several miles inland, and submerging other cities again below the waters, altering the distribution of animal life, and occasionally destroying it to a vast extent." Let us mention one or two instances by way of illustration. In 1822, a tract of territory on the Chili coast, above 100 miles in extent, was raised from two to six feet, and the sea bottom thus laid bare emitted for a long time the most intolerable odour from the decay of dead fish, &c. In 1596, on the other hand, several Japanese towns were covered by the sea. The story of the destruction of a great part of Lisbon, and the loss of life in consequence, by an earthquake, is familiar to most readers. The oscillation of the coast of the bay of Baiæ, near Naples, is attested by the pillars of the temple of Jupiter Serapis. Originally built above high water mark, it had sunk down a considerable depth below the level of the sea, until re-elevated by the terrible events of September, 1538. It is now gradually subsiding at the uniform rate, as measured between 1819 and 1845, of 1¼ inches per annum.

Volcanoes are manifestations of the action of the same subterranean fires, producing results differing from the other only by the degree of force in operation, and the state of the superincumbent materials. In 1759, the volcano of Jorullo was formed in Mexico—the ground for two or three miles round the crater swelling up and bursting—when matter, sufficient to form a mountain 1695 feet high, was ejected.

The burning lava emitted by volcanoes further changes the earth's crust more than might be conceived. In Iceland, a river of melted rock varying in depth from 100 to 600 feet, has been poured over a tract 15 miles broad and 50 miles in length.

The bed of the sea is supposed to be materially affected by volcanic action, which, going on continually, produces changes in depth by elevation and depression. These are mostly unknown in their whole extent, and less noticed than when sufficiently great to elevate islands, as in the south seas, where they become centres for the aggregation of matter floating in the waters or in the air. Thus endowed, the barren rocks become covered with vegetable, and finally animal life, all of which live and die, adding to and increasing the parent soil, and decreasing the size and depths of the water around.

Air, through the action of its oxygen, decomposes metals, forming rust, layer after layer, and through it carbonic acid, which decomposes the hardest rocks into mere powder. Granite is thus pulverised into soil, an operation which it is said has been effected to the depth of three inches within twice as many years.

Rain.—We are so accustomed to behold "the gentle rain," that we seldom take account of its great power, or the changes it exercises on the crust of the earth. In this country, during the last week in January 1865, rain fell in London to amount of 43 tons weight per acre, in Edinburgh to amount of 30 tons weight per acre, and in Glasgow, 215 tons per acre. Rain enters into the fissures of rocks, softening and dissolving them chemically and mechanically. Congealed by frost, nothing can resist its expansion. In the form of floods it tears up the surface into ravines, removes rocks, soils, and other substances, to deposit them in far off localities, filling up hollows and forming plains; while, as rivers, it scoops out extensive valleys. There are many such among the Alps, 600 to 700 feet deep. The great cataract of Niagara has, under this power, scooped out the deep gorge extending to lake Ontario. In the rocky mountains there is a gorge worn by the Missouri river 1200 feet deep and six miles long. The Columbia, Mississipi, and Potomac rivers have made similar deep cuts. On the river Terek, in the Caucasus, is a pass 120 miles long, whose walls rise from 1000 to 3000 feet high, due to the action of running water. The sediments thus borne away into the ocean, diminish its depth, and as the water on the globe is supposed to be constant in quantity, the watery area must gain upon the land to keep up the equilibrium. Whole countries are thus deposited—for instance, Holland by the Rhine, and lower Egypt by the Nile. The Mississipi carries to its mouth in five years and eighty-one days, one cubic mile of sediment; now, as its delta is 2720 cubic miles in extent, the time required to form it must have been 14,204 years.

Glaciers (congealed rain) descending from lofty mountains, such as the Alps, and moving, as has now been acertained, with regularity dependent on the inclination of the hills, carrying in their embrace vast quantities of rock and soil, descend into the valleys, destroying villages, filling up river courses and lakes, changing the face of the country, and scattering the debris with which they are charged far and wide. One colossal glacier of the olden time has poured into the plains of the Po that wonderful accumulation of mud, gravel, boulders, and large blocks, which extends for 15 miles to a height of 1500 feet.

Icebergs are floating glaciers. These, carried by winds and currents into milder regions, as they melt, deposit immense masses of earthy matter into the bed of ocean, and so serve to elevate its bed. The large masses of stone called boulders, found scattered in various parts of the world, without apparent connection with the underlying strata, are supposed to be deposits from icebergs when the locality was covered by deep waters.

Winds, acting on waves and then on the shores, uprooting forests and burying whole tracts under sand.

Electrical Phenomena.—We are cognisant of the effects of lightning in severe thunder storms, but it is more than probable that, although but as yet little studied, the continuous imperceptible effects of electricity are of greater importance. We have good grounds for believing that, as galvanism, it has operated and is still operating in accumulating metallic ore in veins, as well as giving a laminated form to mountains of strata, and a concretionary and prismatic form to other substances.

Organic Influences.—Plants and animals, by their decay, while they increase the superficial soil, raise up others in greater luxuriance only to live and die and perpetuate the process. Bogs are decayed vegetables, and instances of one portion of this law.

Animals.—The most interesting is the Coral insect, through its power of secreting lime from water. Scarcely so large as a pin's head, of a soft gelatinous structure, and star shaped, each of these little corals builds its house in which it lives and dies, its children building theirs on their parents' graves. Uniting together with millions of its fellows to form even a single branch of coral, they yet raise solid structures capable of resisting the wildest attacks of the ocean waves. There are groups of coral reefs and islands 1100 to 1200 miles long, raised on the ridges and tops of submarine mountains and volcanic peaks. This has been going on for ages, and one may contemplate the time when these tiny builders shall have filled up the Pacific Ocean, and so united Australia and Hindostan. Thomas Montgomery, in the following passage, thus describes the labours of these wonderful coral builders :—

"Millions of millions thus, from age to age,
With simplest skill and toil unwearable—
No moment and no movement unimproved—
Laid line on line, on terrace terrace spread,
To swell the heightening, brightening mound.
By marvellous structure climbing tow'rds the day,

Each wrought alone, yet altogether wrought
Unconscious, not unworthy instruments,
By which a hand invisible was rearing
A new creation in the secret deep.
Omnipotence wrought in them, with them, by them,
Hence what alone Omnipotence alone could do,
Worms did. I saw the living pile ascend—
The mausoleum of its Architects
Still dying upwards as their labours closed.
Slime the material, but the slime was turned
To adamant by their petrific touch.
Frail were their frames, ephemeral their lives,
Their masonry imperishable."

On islands so formed, the sea bird finds a resting-place when wearied fishing—the waves deposit floating wreck, animal and vegetable—the winds and waves bring seeds—the land birds too contribute their share of seeds undigested in their stomachs—and both land and sea birds contribute fertilizing guano. The island in time becomes covered with grass and shrub and tree; animals reach it, unwilling navigators, blown from the land on some tree or floating branch; and lastly, man arrives in his canoe, mayhap also an unwilling voyager, or a voluntary exile seeking for himself and family a shelter from persecution, or the murderous attacks of savage enemies.

Three inhabitants of Tahiti had their canoe drifted to the island of Wateroo, a distance of 550 miles, and Malte Brun relates that, in 1696, two canoes, containing thirty persons, were thrown by storm and contrary winds upon one of the Phillippines, 800 miles from their own islands. Kotzebue also states that, in one of the Caroline islands, he became acquainted with Kadu, a native of Ulea. Kadu, with three of his countrymen, left Ulea in a sailing boat for a day's excursion, when a violent storm arose and drove them out of their course. For eight months they drifted about in the open sea, according to their reckoning by the moon, making a knot on a cord at every new moon. Being expert fishermen, they were able to maintain themselves by the produce of the sea, and caught the falling rain in some vessels that were on board. Kadu, being a diver, frequently went down to the bottom, where it is well known that the water is not so salt, taking a shell with only a small opening to receive a supply. When these castaways at last drew near to land, every hope and almost every feeling had died within them; but, by the care of the islanders of Aus, they were soon restored to perfect health. Their distance from home in a direct line was 1500 miles. Such are some of the means whereby islands have been raised from the ocean, covered with soil, and become inhabited.

Through all nature we recognize fixed laws, and behold the conditions under which they act, and to some extent the effect produced. We can thus form some idea of their operations in the past ages of the world, and arrive at the conclusion that immense periods of time must have been consumed in the gradual changes exhibited to us in the geologic record. But, although the laws are the same and fixed, the conditions are varying. The laws of crystallization, light, heat, meteorology, and the great principles of animal and vegetable physiology, are the same now as at the beginning, mayhap hundreds of millions of years ago. The conditions, however, under which the laws are exerted may vary, and have done so.

Where now are the poles of the earth—where there is almost perpetual frost and snow—there once abounded a rich tropical vegetation similar to that of India and Africa at the present day. This is proved by the fossil remains of trees, shrubs, and animals, habitants of a warm climate. Some have attempted to account for this by a decrease of the internal heat, and consequently of the temperature, on the surface. But plants require light as well as heat, and whilst the earth occupies its present position towards the sun, there must be always darkness for about three months at the poles, sufficient reason to account for the absence of prolific vegetation beyond the arctic circle at the present day. The truth is, the orbit of the earth is variable. The slightest change will cause the sun's rays to fall upon the earth differently, and yet be sufficient to produce a marked change on its surface. The earth has another motion than those ascribed to it by astronomers, very slow, but still certain, so that not only is the earth subject to changes from dry land to sea bottom, but the poles have been the tropics, or at least subjected to the action of the sun's rays as in the tropics. The great sothic seasons of the earth have changed, and with them the animal and vegetable productions. What an idea of time past does this present in the history of the earth!

In addition to these causes for geological change, always in action, man has, during his brief sojourn upon earth's surface, largely aided both involuntarily and by design. In death, his remains mingle with and swell the superficial earth soil. In life, the stony strata are made to minister to his comfort and daily use in the building of cities, temples, bridges, and other works of civilization, and in the abstraction of ores and fuel from the bowels of the earth for purposes of commerce and art. Forests are cut down, swamps drained, land reclaimed, affecting the climate and physical character of a country; and land cultivated or reclaimed from the grasp of the ocean, introduces a new flora, and spread of leguminous and cereal plants, and the supplanting of wild animals by domestic varieties. How different the condition of Britain from the time when Cæsar landed his cohorts on its coasts—abounding in forests and morasses, tenanted by the bear, the wolf, and the fierce bison; and, within a more limited period, how great the alteration across the Atlantic, in America, since the landing of the Pilgrim Fathers from the little "May Flower" on the shores of Masachussets.

Still, the great laws of nature remain unchanged. The first crystal formed was formed exactly with the same angles, and in the same shape as the last; the first clouds of vapour that rose into the air, and again fell in drops of rain, did so like the shower of to-day; the first rushing wind that swept the ocean restored the equilibrium exactly like the cyclone which has passed, or the gale which has made its circuit round our coasts; the first leaf that fell on the earth, the first river that ran into the sea, obeyed the same laws of gravitation which are in operation at this hour. The races of animals and plants, which have lived and died, have changed their forms, but the same identical laws which guide them now guided them in the past.

CHAPTER III.

THE changes which have occurred during comparatively modern periods, and which can be proved by distinct evidence, will give some slight indications of the time necessary to produce certain effects.

Says Professor Philips, "The geological scale of time is founded on the series of the strata deposited in the ancient sea; if the forces tending to produce such deposits have always been productive of equal effects in equal times, the thicknesses of the strata are exact measures of the times. The thickness, added in a certain historical time to the modern sea bed, will bear the same proportion to the total thickness, which has been added in geological time, as the historical time ascertained to the geological time required. For example, assume an extravagantly high rate of waste, such as that on the coasts of England, which certainly cannot equal one foot in a year; apply it to the whole of the sea coasts of the world; assume these to be equal to four circuits of the globe, that is to say, 100,000 miles in extent, and 100 feet high. The annual waste will be $(100{,}000 \times 100 \times 1) \div 5280^2 = 0{\cdot}4$ cubic miles of sediment. The area of the land being, as before assumed, equal to the area of new deposits, we have 50,000,000 square miles covered one 2000th inch deep with these spoils won by the sea from the land."

It has long been known to geologists that land and sea have repeatedly changed places by a gradual submergence and subsequent upheaval of the land, not only from the fact that marine shells, corresponding to those found in the neighbouring littoral shores, are found on mountain tops, but from the remains of marine animals, found in situations now far removed from the sea, and at elevations considerably over its present level.

An examination of the upheavals in Scandinavia have resulted in the decision that these are all the results of movements of post-tertiary date, and have been tolerably uniform over large spaces. Sea beaches, containing marine shells of recent species, have been elevated several hundred feet. At Altenfiord, a sandy terrace, shewing marks of the erosion of the waves, rises gradually, in one locality, from 85 to 220 feet above the sea. Again, in 1855, a sudden and permanent rise of land took place in the northern island of New Zealand, to 9 feet vertically in one locality, while in 1811 and 1812, around New Madrid, in the valley of the Mississipi, vast subsidences over large tracts of land took place. In one place, where formerly the plough had been driven, there is now a ravine seven miles long, and, in some parts, sixty feet deep.

These beaches and terraces were formed as the ocean waters drained from the land, and as the rivers wore down their beds; but, although the last process has been going on to the present hour, scarcely within the memory of man, or during human history, have they made any progress perceptible beyond a few feet in height or depth. How vast the period then since the commencement of these changes!

Skeletons of whales have been dug up in the Carse of Stirling, several miles from the sea, and about twenty feet above high water mark. Corresponding to their elevation is the old Roman port of Inveresk, now a shoal estuary, which could only have been used as a port when the sea washed the base of the hills on which stands the City of Edinburgh. Another Roman port was Alaterva, now the modern village of Cramond, and once the principal harbour on the south side of the Forth. There the old Roman quays have been found. Eighteen centuries ago, the land must have been twenty feet lower, to admit vessels into the harbour, and, were it now to sink, Cramond would again be the best and safest harbour on the Forth. Supposing, therefore, the sinking or upheaval to proceed at a uniform rate, which is mere conjecture, as there may have been, and there are strong indications that there were, long stationary periods, twenty-five feet of upheaval would give as requisite seventeen centuries.

Two localities in Wales have been examined by Professor Ramsay and others, where shells have been discovered indicating a submergence of 2300 feet. Taking the submergence and upheaval, without allowing for any pause or stationary period, when the downward movement ceased, and before the upward began, a lapse of 180,000 years must have taken place.

Paris and London stand upon what were originally lakes, prolific with animal life. Under Paris, and below the alluvial soil and peat, there is an immense bed of fresh water limestone, abounding in fresh water shells (milliolæ) in numbers so enormous that a cubic inch of stone is composed of no less than two millions of them. Of this stone the city is built, but deeper still there is another bed of sand and sandstone deposited when the sea flowed over it, and containing millions of marine animals. Lower still, a fresh water lake occupied the spot, leaving a thick bed of gypseous marl, also the grave of animals; but this lake stands upon a bed of marine shells, left by the ocean in still older times, and below this again, a bed of clay left by some mighty river, that flowed there in times still more remote. Thus, in the Paris basin alone, five great layers or beds indicate as many mighty changes, which almost confuse the mind, in the attempt to estimate the time requisite for their development.

The changes which have taken place in the physical geography of this country are indicated by similar phenomena, and these prove that what is now the German Ocean was once land—nay, that probably, when England was united to the Continent, which an upheaval of less than 300 feet would again do, the Thames was a tributary of the Rhine. For ages the ocean has been beating in vain against the chalk cliffs of England, and these cliffs are formed of animal remains, consisting of the shells of myriads and myriads of creatures, which have lived, and died, and been buried, in quantities so great as to form a total thickness of strata, more than two and a half miles in extent.

Ehrenberg, the great Prussian philosopher, mentions a stratum, fourteen feet thick, in Germany, the Bilen polieschiefer slate, which contains 41,000 millions of one description of microscopic infusorial animals (Galionella distans) in each cubic inch, and that a cubic inch of the same material contains about one billion 750,000 millions of distinct individuals of another description (Galionella feruginea.)

The system of carboniferous strata is about 10,000 feet in thickness. The seams of coal were formed by the decay of vegetables and plants, which grew up, flourished, and were deposited in the same localities, or by the action of water borne into the hollows of the earth's surface. Let it be imagined what vast masses of vegetable matter—how many successive crops as it were—went to form one of these seams, and the time required for the growth and decay, not of one stratum, but of each and all.

But between the seams of coal are deposited layers of shale and solid rock firmly compressed, placed there during the intervals of the formation of the coal beds, and while the localities were covered with water. Each of these interstratified layers must have required ages to produce it, so that, when we consider what periods must have elapsed, not only for the strata as a whole, but for every one of the series, separated as they must have been by long periods of time, our imaginations become bewildered in trying to contemplate periods so very great. "In whatever way we try the question of the antiquity of the fossiliferous strata, whatever class of phenomena we bring under examination, the results are always the same, always indicative of periods too vast, and we must add too vague, for conception. If, for the purpose of arriving at more definite ideas, we select from the pile of strata some part whose origin is clear, and whose formation was continuous, the time still comes out enormous. The coal-formation, in South Wales, is 12,000 feet thick, and, through a great part of its thickness, there gives proof after proof that this whole series of strata was deposited bed by bed at, or nearly at, the level of the sea; the estuarine alveus continually sinking, and continually receiving additions of fresh sediment. Many beds of coal, amounting to 120 feet in thickness, alternate with these sediments. Not a single bed of limestone occurs in the series; towards the bottom are marine shells, above, only fresh water shells and land plants; the whole mass agreeing with the facts of estuarine accumulation at the mouth of a great river. If the growth of the sediment were at the same rate as the waste of the land, 12,000 × 12 × 111 (the years employed in the productions of the sediments) the time required would be 15,984,000 years." Generally speaking, this process of rock formation is very slow; accumulations of mud, sand, and gravel, at the bottom of lakes and the ocean, increase perpendicularly only at the rate of a few inches annually, so that the expression millions of years may be but a small portion of the actual period required for the formation of the carboniferous strata alone.

The stratified rocks, formed from the igneous rocks by the action of the water, atmospheric and other agencies, contain, for the most part, remains of animals and plants. The preservation of the most delicate parts of these remains, and the clear and distinct casts and impressions of other parts, nay the position in which they died, shew that their entombment was of the slowest and gentlest procedure. The mud, sand, and other materials of which the rocks are composed, must have been transported by rivers or ocean currents, to settle down in calm waters, and as the sediment took place, it covered the plants and animals, denizens of the locality, or which were also transported to it by the same water agency. When the water drained off, the deposit must have hardened into stone, by admixture of lime or iron, or by internal heat, and, after repeated operations of the same causes on the same locality, finally been raised above the waters as dry land. For example, according to Professor Phillips, "the Ganges which drains 300,000 square miles of plains, hills, and mountains, containing a great variety of rocky and earthy masses, delivers annually to the Bay of Bengal, 6,368,077,440 cubic feet of sediment, which is equal to 1-111th of an inch in a year. The maximum thickness of the strata is supposed to be about 72,000 feet = 864,000 inches, and dividing this by 1-111th, we have the calculated antiquity of the base of the stratified rocks—95,904,000 years. But here two things are to be allowed for. The thickness of the old strata is taken at a maximum, and the new deposit is supposed to spread over a much larger space of sea bed than it really does, so that the period found is something too large. On the other hand, the Ganges carries much more sediment than some other great rivers—nearly twenty times as much as the Rhine. It has the character of tropical or excessive effect, and on this account the period may be much too short."

Effects such as these are easily discernible, many alike in the materials employed, and many more implying great changes in the waters, in the materials suspended or in solution, requiring different oceans of different characters to have flowed over the same spot, all proving elevations and subsidences of the earth's crust, and affording evidence of the lapse of vast periods of time. The strata thus formed disclose the fact that numerous races of animals and plants must have occupied the earth, and passed away, from various causes, such as change of climate and fearful catastrophes, ere the recent races made their appearance, or were created. More than 30,000 species have already been discovered, none of them corresponding to those now living, with the exception of a few hundred species, principally shells, in the uppermost rocks. So that since life first made its appearance on the globe in organized being, it is supposed that ten or twelve entire races have passed away, and that its inhabitants have been changed as many times. Each of these groupes consisted of numbers so great, and occupied the world so long, as to leave immense quantities of their remains, as in the chalk deposits. "Among the Pyrenees," says Lardner, "whole mountains consist of little else than the fossilized remains of minute shell-fish, and that of such materials the Pyramids of Egypt were formed." These Pyramids have existed four thousand years —the wonder of mankind—but how insignificant do they appear in comparison with those stupendous works, which, ages ere their foundations were laid, must have been forming in the hidden parts of this life-sustaining world! In calculating the period that must have elapsed since the world began, we must allow whatever is needful to account for the construction of each of these rocky leaves of our mundane book, and the perpendicular thickness of these in the aggregate, from the granite upwards, if it were possible to place them one upon another, would amount, according to Sir Roderick Murchison, to not less than fifteen miles, the larger portion of which are found filled with vegetable and animal remains. Reason cannot but revolt at the conclusion that a structure so enormous, and so composed, was formed within a period which commenced only six thousand years ago.

Who then can undertake to express in numbers the periods which make up the sum of the years of earth's history? The mind fails in the attempt, and becomes bewildered, like as when in astronomy, planet after planet leads us into the infinity of space. There was a point in time when the Almighty gave this world existence.

The Bible declares so much, but leaves the epoch unrevealed. The vast duration of the globe, like the vast expansion of the infinity of space, is in its contemplation an idea almost as sublime as eternity.

CHAPTER IV.

THE study of the leaves of the stone book affords information of no ordinary interest. Each leaf tells its own story somewhat independent of the others, but it requires the whole volume to be read through before one can rightly understand the wondrous tale. Imbedded in these leaves are the fossil remains, or organic remains, of animal and vegetable life, existing when the various leaves were impressed, and these are the illustrations which serve to make the subject of which we read more easily understood.

Beginning with the first leaves, or primary series of rocks, called also azoic or lifeless, from the fact that no remains of life have yet been discovered in them, we find the granite underlying all the others, now as a floor of undulating form, now as mountain ranges, or as veins forced up through the overlying strata, by the action of uncontrolable internal forces, yet everywhere exhibiting proofs of its original igneous state.

Once a molten liquid mass, as the surface, by radiation into space, gradually cooled down, the stratum became crystallized, forming one of the most beautiful rocks in structure, constituents, and colour. The process of refrigeration thus called into operation, the chemical affinities of the various gases, oxygen, hydrogen, nitrogen, and chlorine, the constituents in certain proportions of air and water. Oxygen is so generally diffused that it has been estimated to amount to one half of the solid matter of the globe, in various forms ;—it forms one fifth of the atmosphere, eight ninths of water, and a large proportion of almost every rock and metallic ore.

The needful condition having been reached in the cooling down of the globe, by the union of the component gases, the production of water took place, very probably in the form of steam at first, but gradually as ages rolled on, and refrigeration continued, being condensed into water, covering and enveloping the still heated mass. The combined action of the gradually lessening heat with that of water and other atmospheric influences upon the granite, chemically and mechanically disintegrated its particles. These taken up by the water and again deposited, formed, by sediment the gneiss and mica schist systems, thus covering the granite by its own waste, with a floor of loose sand and other materials, eventually, by heat and pressure, to be compacted into solid rock. Sir Roderick Murchison estimates these rocks to be of the enormous thickness of 26,000 feet. Immediately over them, and as it were a continuation of them, lies a stratum of sand, pebbles, and mud, deposited under less turbulent circumstances. These, as a whole, are the earliest watery deposits known. Their materials are but slightly altered from the parent bed, and they extend so largely over the world as to approach nearly to an universal formation, yet, from the circumstances that the waters in which they were deposited were then literally a boiling ocean, and in other respects unsuitable, they probably preceded the period of existence of life in any shape. It has, however, been supposed that the discovery of two generic forms in the rocks of Bray, in the county of Wicklow, would somewhat modify this conclusion. Of one which has been named Oldhamia, considerable doubt is expressed as to whether the discovery should be classed as a plant or as a zoophyte, meaning a body supposed to partake of the nature both of an animal and a vegetable, as madrepores, coralines, &c. The zoophytes construct and occupy habitations which are fixed to the ground, and which have the form of plants. The other, named Histioderma, is an annelid or worm, probably of the cephalobranchiate order, meaning an order of molluscs, whose organs of prey, or tentacles, are placed round the head.

But, although the gneiss and mica schist formations are azoic, they are by no means uninteresting. An apparently unimportant trifle met with in our researches, often reveals an important point in history. The garnet found in them does this in the history of the series of rocks under consideration. It shews that it assumed its present form through the influence of heat sufficiently powerful to fuse together its component parts, but that the heat required to do so was insufficient to melt the rocks, and so restore them to their original chrystalline state. Radiation of heat and refrigeration become thus apparent.

But in addition to the garnet, are found embedded in these metamorphic rocks, crystalline limestone, and veins of tin and copper. The position of metallic ores generally illustrates in a marked degree, in one matter, the benevolence of the Deity, and thus, seeing that the globe was once in a molten state, it might have been expected that the metals and ores, being heavier than the other rocks, would have sunk to and been accumulated at the centre. This may be true in the main, and yet by sublimation, or the segregating power of galvanic action, enough of the metals is protruded through the rocks, in beds and veins, to be accessible to human industry.

God has so distributed the metallic ores, and placed so many difficulties in the way of getting them, as to demand much mental and physical effort for their exploration and reduction, thus disciplining body and mind, and affording an evidence of infinite wisdom and benevolence.

Succeeding the crystallization and refrigeration of the primary series of rocks, forming the shell of the earth as it were, ages, probably millions of years, of comparative quiet appear to have passed, during which time the tides and currents of the ocean washed over, and wore down the projecting rocks and inequalities, dissolving the lime, and gathering up the minute particles of sand and clay, to be deposited in other and varied localities, there to form afterwards in alternation, the strata known, first the Llandeilo, secondly the Caradoc, thirdly the Wenlock, and last and uppermost the Ludlow formation, subdivisions of the Cambrian and Silurian systems.

At length we touch upon the boundaries of life in all its varieties and forms. As the husbandman in the Spring begins to break up the soil and to prepare it for the seeds and plants, which should, under the genial skies of Summer, bud and flourish in countless numbers and gorgeous beauty, ripen in the mellow Autumn, and be at last gathered into the great storehouse, so the earth was being prepared for the magnificent and wonderful productions which were to follow the Winter of the Azoic period, when neither seed nor animal, however low in the scale of life, had a being.

In tracing life upwards in creation, and, as it were, ascribing a definite time to its origin on the earth, it is important to keep in view that all our information is derived from the petrified remains, or fossil remains, to be found, and to consider how far the record is complete. While we cannot for a moment imagine that specimens of every living thing were deposited in the sediments from the waters, afterwards the rocks, in which we now find these organic remains, we can as little suppose that we have discovered complete sets of what has been deposited; besides, of the bottoms of seas and oceans, covering the greater part of the earth, we can and do know nothing. Says Professor Ansted, "There is hardly a river that now enters a lake or the sea—there is not a coast line in any part of the world—and it would seem that there is hardly a spot buried under tens of thousands of feet of salt water between England and America, that has not resting on, buried beneath, or drifting along its bottom, a multitude, 'which no man can number,' of the shells, the incrusted cases, the external or internal skeletons, the teeth, and other remains of animals living near. These are the illustrations vividly representing the conditions of existence. Of the myriads of animals that pass along, carried by the water, the greater number serve as food to other animals of larger proportions, and thus become immediately reconverted into organic structure. Many more, when dead, become the prey of minute creatures, which soon reduce them to their parent dust, with no trace left of their former existence. Some decay and fall to pieces, and are thus altogether lost; while of the rest, the harder parts may be buried under favourable conditions. Of these last only it can be that a few, in the course of time, undergo the change which fits them to serve as permanent records of the age in which they flourished. How few this is in proportion to the whole number—how partial and imperfect is the record of former times thus handed down to posterity, may be imagined by those who will take the trouble to search for themselves, in recent formations, for evidences of the life of the district. But the real poverty of the record can hardly be thus appreciated; because it is quite impossible for us to know how much, or rather how little, is preserved in the larger deposits, owing to there being no means of looking forward in time, and anticipating the amount and extent of the destruction that will follow the decay that now goes on, and that conceals the real nature of organic substances during their conversion into new minerals. It is indeed wonderful in the highest degree that, in spite of all causes of destruction, and all changes of material, so great a variety of remains, as those already described, should have been preserved and discovered by Geologists. A few centuries ago, the very existence of fossils was hardly known as a fact on which an argument could be based. For a long time, the fact of their having really belonged to animals and vegetables was doubted. Afterwards, many rocks were considered as being quite without fossils, which now are known to contain them in infinite abundance; and, although each year still adds to the number and variety of the different species, and introduces us either to new localities for known species, or new species from the known localities, there are yet many naturalists and geologists who are unable to recognise the probability that our knowledge of the subject is still very imperfect, and ought not to be assumed as complete in any department."

The earliest supposed appearance of life has been found in the lower Cambrian rocks of Wales, and also in the rocks of Bray, in the County of Wicklow—probably an older group of the same strata. But it is in the lower Silurian rocks of Russia that the certain revelation first presents itself, in the very humblest character, in markings produced by Fucoids, a tribe of sea plants flowerless and seedless. Thus, the food for the nourishment of the animals preceded the animals themselves; and these appear to have been Zoophytes, Annelides, and Crustacea. Specially remarkable are the Polyparia, builders of coral and secreters of lime; the Graptolite, burrowing in the sand and slime of deep waters; and the Crinoidea, or kind of star-fish, fixed on a flexible stalk, and rising from the sea bottom—a Zoophyte with no organs of sight or hearing, but with arms to catch its food, and a stomach of one aperture, and no more, to digest it;—the Annelide, or sea worm; the Nautilus and Cuttlefish of the mollusc family—a division or class of animals having soft bodies without an internal skeleton or articulated covering. Some of these breathe by lungs, others by gills; some live on land, others in water; some of them are naked, others testaceous, or provided with shells. Many of them are furnished with feelers, or tentacula. Along with them is found the Trilobite—so called because three-lobed—not unlike our wood louse on a gigantic scale, belonging to a great family, indeed, almost omnipresent in every deposit, inasmuch as upwards of 250 species have been described. These Crustaceans were the scavengers of the early oceans and seas, what shrimps and crabs are to ours. They are supposed to have swum at the surface of the open sea, feeding on their marine companions, and to have been able to roll themselves into a ball, so as to defend themselves when threatened with similar consequences. Their mode of locomotion was either by means of soft paddles or the flexible power of the body. But the eyes, which have been preserved in some of these fossils, are the most wonderful in their organization, and form a feature most interesting for the geologist. Dr Buckland observes—"This point deserves peculiar consideration, as it offers the most ancient, and almost the only example yet found, in the fossil world, of the preservation of parts so delicate as the visual organs of animals that ceased to live many thousands, and perhaps millions of years ago." There are two eyes, each consisting of 400 compartments or lenses, so placed on the surface of the cornea, projecting conically upwards, that they all look outwardly from the animal's head. These, then, are raised so that the animal, from its position at the bottom of the waters, can see all around without any hinderance from its own protuberant body; but their inward lines of vision do not cross each other, as that would have been an unnecessary waste of power—a striking instance of the combination of fertility and economy that nature so often loves to present unto us. Wealth, not waste, seems ever her motto. But the Trilobite has been a means of important special instruction to the geologist. It tells that the air, the light, and the sea waters of the incalculably distant eras, when the Trilobites flourished in such amazing profusion, were essentially as they are now. For, first, if the deep waters had been turbid, such delicate organs of vision would have been useless; second, had the atmosphere differed from its present condition, the rays of light would have been also affected to a different result, and then we should not have found, as we do find, the eyes of existing Crustaceans agreeing with the older Crustaceans in question; and, thirdly, as to the light itself, it is certain that the mutual relations of light and optical vision were essentially the same as now, because the essential organizations of the eye in both periods are the same, a happy instance of sound logical and geological deduction. How wonderful, how awful, to think that we can thus, as it were, arrive at that period in the backward history of the world when air and water enclosed it in their embrace, and light itself first burst upon the scene! How comforting to see that the Divine being then exercised a care and solicitude for the well-being of His creatures as great as He has now for those of later ages; "God, the same yesterday, to-day, and for ever." Even in this stage of life the distinction, with which we are familiar, existed between the vegetable feeders and the flesh eaters. The Trilobites belonged to the Carnivora, the latter class.

"What sea receding from what former world
Consigned these tribes to stony sepulchres?
Bewildered sage, proclaim thy wisdom folly,
And when thy reason fails let faith begin.
The rocks have sacred secrets of their own,
And teach the wise humility and praise."

Some geologists have imagined that dry land, to some extent, prevailed during the Silurian age, and they do so upon the ground that great disintegration is exhibited in the strata. While it is no doubt true that greater disintegration takes place where land and water meet than under the ocean, it must be borne in mind that disintegration must have been produced by volcanic action, beneath the water, in a greater degree by far than by atmospheric action. That, towards the close of the Silurian age, the internal forces were not quiescent, is evidenced by the displacement of the strata from their original and horizontal position, and the masses of igneous matter, such as lava, greenstone, serpentine, and porphyry, which have been forced upwards, and flowed in rivers of molten materials in every direction.

The economy of nature has ever been the same in regulating the proportion of creatures by the supply of food for their subsistence. No remains of land plants have been discovered. The epoch presents our world covered by a shoreless sea, inhabited by invertebrate animals—the Zoophytes, imbedded in the muddy bottom; the Star-lillies on their stems, waving their tentacles in search of their prey; the Trilobites and Molluscs, equally voracious, roaming in every direction. Towards the conclusion of the period, traces of vertebrate animals in fishes appear, but no bird was there to break the monotone of the ceaseless wave with even the faintest twittering note; not an insect to dot the sunbeam with its tiny wing; no reptile, no mammal, not a single flower or plant or leaf, to catch a single drop of dew. Yet life in its lowliest form had received its beginning, through succeeding ages and formations to increase in extent and wondrous form, only to culminate in perfection and to inhabit eternity.

The deposition of the strata we have been describing, although of immense extent, yet, compared with the size of the earth, holding but the proportion of the paper which covers a twelve inch globe to the body which it covers, no doubt retarded considerably the radiation into space of the heat of the earth itself; and ages must have passed, during which thousands of generations of Crustaceans, Molluscs, and Zoophytes lived and died, providing, by means of their shells, immense quantities of carbonate of lime.

This quiet and systematic order of things was stopped by great and terrific convulsions of nature, arising from the contraction of the fluid mass of the earth, occasioned by its cooling from the radiation of heat into space; and the crust thus contracted appears to have given way over almost the whole surface of the globe, producing rents, and fractures, and dislocations of the whole stratification, primary and transition.

Volcanic action, too, of the most tremendous character, seems to have accompanied these disturbances, and, in combination with the meeting, in opposite directions, of the surging waves of the sub-existing fluid matter, to have resulted in the elevation of those mighty mountain ranges of the existing world, which now lift their snow-capped tops above the clouds. These rugged and peaked tops are formed of the fractured masses of the broken strata, thrust upwards, borne to their aërial resting places on the crests of the opposing waves of molten earth. The mighty volcanic, and other convulsions, induced another change, by diffusing iron oxides into the waters, and changing the sediment, formerly a dark grey mud, into a red tinge. No doubt, also, it exercised fatal effects upon the then inhabitants of the sea, for many species then disappear from the roll of life.

CHAPTER V.

The causes noticed in the last chapter having subsided, the surface of the earth assumed a new arrangement, and the Devonian era was ushered in by the deposition of the secondary strata, around the ranges of the primary rocks, and in the hollows and undulating bed of the sea, by the same processes of disintegration of the primary strata, and the operation of the same agencies of transport, deposition, and condensation.

The secondary strata comprises the Old Red Sandstone, so called from its deep red colour, as exhibited in Devonshire (where it is most abundant, and hence sometimes named Devonian, and to distinguish it from the New Red Sandstone found above the Coal measures), the Mountain Limestone, and the Coal measures. Its entire thickness is small, as compared with the preceding systems, and it extends over much less space, but it is far superior to them in all that concerns the development and support of organized beings. The composition of the Old Red Sandstone is very varied, alternating from rocks of the finest grain, and laminated, to conglomerate of sand and pebbles, of varied colours, from red to yellow. The whole are evidently aqueous deposits, and many of the strata exhibit the ripple marks of the ocean waves of countless ages bygone, as clearly as the sand of the beach to the lounger by the seaside of to-day. The lower, or grey coloured series, containing the glistening particles of mica from the primary rocks, is the sediment of calm waters; the conglomerate owes its formation to currents and stormy seas, and the superincumbent yellow to the returning calm and rest of the water in which its particles were held in suspension.

During the formation of the Devonian series of the secondary rocks, no certain evidence of land plants is found. Marine fuci were the chief; and these, as they must have grown under the influence of a much higher temperature than now exists, prove the general prevalence of a tropical climate in these long past eras. As there were no land plants, there were no land animals—marine life alone prevailed, as in the preceding epoch; but, out of eight hundred species then existing, about one hundred only passed into the other. To fill up the void, fishes made their appearance in numbers, but all cartilaginous, and thus differing from existing species, among which the bony skeletoned are the majority, the cartilaginous few in number. There were many of the shark tribe, and some of these so large, as to have been supposed full thirty-six feet long. These, like the Mollusca of the previous age, kept down the numbers of the watery population.

The fishes of this age were clad, too, in bony armour plates, and have been divided, in consequence, into two great classes—the Placoids, where the irregular enamelled plates fitted edge to edge, and Ganoids, where the plates regularly overlap each other, like the scales of modern fishes. They possessed another [illegible] form of the tail being larger on the [illegible] side, hence they have been denominated Heterocercal. The most interesting and wondrous forms among these fishes may be reckoned the Cephalaspis, or buckler-headed fish, its shape exactly like a saddler's or cheesemonger's knife, its head protected by a shield—hence the name—strong in attack, but weak in defence; and the Pterichthys, which derives its name from its wing-like fins. These they are supposed to have used in defence; and the species is as numerous and characteristic of the Old Red Sandstone, as the Trilobite of the Silurian formation. Among the new species, a monster Trilobite made its appearance—the Brontes—four feet in length, and having claws like a lobster.

Among those which passed from the preceding age into that of the Devonian, the coral builders are specially remarkable, towards its close—near to the commencement of the Mountain Limestone series—and in such numbers as to have left whole strata of immense thickness as the results of their labours. Building their habitations and their tombs in the warm water, they robbed it of the Carbonate of Lime which it contained, and, along with the Encrinites, during the peaceful ages which succeeded, filled up, with their structures, spaces so vast as materially to divert the ocean into other situations, and change the position of sea and land.

The term Mountain Limestone stratification is applied to the masses beneath the coal measures; but it seems often to take up irregular positions, sometimes alternating with the coal beds, or with sandstones, shales, and ironstones; sometimes flanking, sometimes crowning hills of trap, leading to the supposition that it had been there formed by Coralines, when the mountain top had barely emerged from the waves which flowed, in deep water, over all around. The strata of Mountain Limestone, thousands of feet thick, extending over vast districts in Europe and America, are the remains of these minute, but industrious, Polypi; and the beautiful Encrinitic Limestone we so much admire, and which is so common, is the tomb of myriads and myriads of the creatures, of which it is mainly composed, and by which its materials have been secreted from the heated waters of the ocean of incalculable ages past. What an astonishing development of life must have prevailed in order to leave such enormous results!

> "It is a lonely place, and at the side
> Rises a mountain rock in rugged pride,
> And in that rock are shapes of shells and forms
> Of creatures in old worlds; and nameless worms
> Whole generations lived and died ere man,
> A worm of other class, to crawl began."

The animal life of the Limestone rocks exhibits a marked advance on the previous eras. The corals are larger, and, where formerly attached to the ground, are now able to move about at will; and, therefore, unlike all of the same family existing previously, or since. But the family of the stone lilies, Encrinites or Crinoids, is among the most remarkable of these wonders. Says Dr Buckland—"We may judge of the degree to which the individuals of these species multiplied among the first inhabitants of the sea, from the countless myriads of their petrified remains, which fill so many limestone beds of the transition formations, and compose vast strata of entrochal (expressive of the *wheel*-like joints of the stem of the animals) marble, extending over large tracts of country in Northern Europe and North America. The substance of this marble is often almost as entirely made up of the petrified bones of Encrinites, as a corn rick is of straws. Man applies it to construct his palace, and adorn his sepulchre; but there are few who know, and fewer still who duly appreciate, the surprising fact, that much of this marble is composed of the skeletons of millions of organised beings, once endowed with life and susceptible of enjoyment, which, after performing the part that was assigned to them in living nature, have contributed their remains toward the composition of the mountain masses of the earth." The Encrinite was fixed at the bottom of the sea, but could reach a considerable distance around it, through the flexure of its wonderful stem, of which we will speak presently. Others were able to float singly through the water; and yet others were accustomed to attach themselves to floating pieces of wood, &c. The stem is composed of joints, often called wheelstones, or St Cuthbert's beads, as they were used in monkish times upon strings as beads for a rosary. Hence the lines—

"On a rock by Lindisfarn,
Saint Cuthbert sits, and toils to frame
The sea-born beads that bear his name."

Each of these joints presents a similar series of articulations, varying as we ascend upwards through the body of the animal, every joint being exactly adjusted to give the requisite amount of flexibility and strength. From one extremity of the vertebral column to the other, and throughout the hands and fingers, the surface of each bone articulates with that adjacent to it with the most perfect regularity and nicety of adjustment. So exact and methodical is this arrangement, even to the extremity of its minutest tentacula, that it is just as improbable, that the metals which compose the wheels of a chronometer should for themselves have calculated and arranged the form of the teeth of each respective wheel, and that these wheels should have placed themselves without creative agency in the precise position fitted to attain the end resulting from the combined action of them all, as for the successive hundreds and thousands of little bones that compose an Encrinite to have arranged *themselves* in a position, subordinate to the end produced by the combined effect of their united mechanism, each acting its peculiar part in harmonious subordination to the rest; and all conjointly producing a result which no single series of them, acting separately, could possibly have effected.

The shell fish of the Mountain Limestone present many curious and gigantic forms, arguing a still greater reduced temperature in the water, and that it held largely in solution calcareous matter of which their bodies are composed.

> "In yon limestone blue,
> On the mountain steep,
> In the valley deep,
> Are the skeletons of the dead."

The fishes have not only become gigantic in size, but participate so strongly of reptilian character, that they have been called Sauroid. Their teeth have been found four inches long, affording not only indications of their size, but of their habits, and the fate of their less powerful neighbours.

The Coal measures are generally above the Mountain Limestone; but beds of coal called Anthracite, less bituminous than true coal, are often found below or alternating with the strata.

Land Plants now make their appearance on the earth, which has been gradually rising from the ocean, so long its covering, for the thin seams of coal found in the system are their remains, and the precursors of those enormous stores of fuel, arising from a vegetation extensive almost beyond imagination. During the formation of the Limestone—beyond frequent small volcanic eruptions, evidenced by outpourings of Basalt, Toadstone, &c., into the crevices of the Limestone—the age was comparatively quiescent. During its long duration, extensive swamps were produced by the evaporation of inland lakes. In these, and in the lagoons near the shore, subject to occasional inroads of the sea, the most luxuriant vegetation flourished, gigantic pines, trees, ferns, equisetaceæ, the mammoth progenitor of the common horse-tail plant of our times. These plants, and others—including flower-bearing and fruit-bearing companions—nurtured by a hot moist climate, aided by the bottom heat from the still warm earth, presented a luxuriance of growth to which there is no parallel in the present day, wonderful and rapid as is the growth of trees and plants, in the forests and lagoons of Africa and India. It is supposed, although by some the supposition is held to be untenable, that such fertility was assisted by, and very much depended on, the condition of the earth which evolved, and the atmospheric air which contained, a large proportion of carbonic acid gas, favourable to the growth of vegetable, but destructive to the existence of air-breathing animal life. Liebig, however, has shown that it is unnecessary to suppose that the air then contained more carbon than at present, in order to explain the absence of fossil remains of birds and other air-breathing animals, inasmuch as there is at present in combination with oxygen more carbon than exists in all the coal fields of the world.

Be that as it may, the plants decaying and falling upon the surface of the earth, where they grew, accumulated in masses of carbonaceous matter, afterwards changed into coal by time and the pressure of strata successively deposited to the depth of hundreds of feet by the inroads of the sea, and rivers bearing along sand, clay, &c.—all of which were left as sediment when the waters became still. Above these sedimentary deposits, the same growth recommenced, to be followed by similar results, to form a second and succeeding seam of coal. Ages must have elapsed not only in the formation of one seam, but of the numerous seams and interstratifications which comprise the "Coal measures." The thickness of the coal seams is small in comparison with the strata in which they are imbedded. In the North of England, the entire series of strata is estimated to extend to about 3000 feet, while the coal seams, 20 or 30 in number, only reach about 60 feet. In South Wales, however, the strata reach nearly 12,000 feet in thickness, and present, says Sir Charles Lyell, the results "of fifty, or even a hundred, ancient forests buried one above another, with the roots of trees still in their original position, and with some of the trunks still remaining erect." A calculation, however roughly made, of the time necessary to form the South Wales' Coal measures will give some faint idea of the awful lapse of ages past; and, if to these be added the period required for the formation of the other geological systems, the calculator will arrive at the idea, "time unfathomable."

"Geology is to time what astronomy is to space. Both carry man to the extremest range of his intellectual powers, and enable him, as it were, to look over trembling into the fearful abyss beyond. Both carry him at last, in profound humility, to God, whose help we require to enable us to stand fast amid such sublime phenomena."

Thus, a hand not seen, the mighty hand of God, was gathering and storing up the fossil treasures of the age in repositories impregnable, to be delivered up in these last days, and to confer on millions of His creatures numberless benefits, employment to the body, and development of the powers of the mind; elevating nations among nations; advancing civilization, arts, and science; bridging over the pathless ocean; and extending the knowledge of His name and power to less favoured lands.

An examination of the fossils of this age, mostly appearing in the forms of leaves, branches, trunks, pieces of trees, and in ripe fruits—singly, not in clusters—has resulted in our acquaintance with about 800 species, all gigantic in their development. Ferns (by far the most numerous), equisetums (horse tails), club mosses (in the present day the lowliest of the vegetable family, but, in the boundless magnificence of the then vegetation, rising to 80 feet in height), cacti, pines, canes, bamboos, palms, tree ferns, and plants allied to the bulrush. No grasses, herbs, or shrubs are found; but this is not to be wondered at, nor is it to be supposed that they were absent from a Flora of such wondrous extent and beauty. In order to test this question, and afford a correct explanation of their absence, Dr Lindley exposed to the action of water 177 plants belonging to the orders found in the Coal measures, and to those existing in our day which might have been supposed present, with precisely the results we find in the Coal measures. In two years, 121 species of grasses, herbs, and shrubs had disappeared, leaving the remains of coniferous plants, palms, club mosses, and ferns, with their organs of fructification destroyed.

Of animal life, the marine world had lost the Zoophytes and Crinoidea of the former age, but it still contained numerous fishes, some of which—chiefly Sauroids—were developed to an enormous size.

Of air-breathing land-walking animals, this age is supposed to have witnessed the first appearance, in forms allied to crocodiles, lizards, scorpions, and beetles; but because we have not discovered their fossil remains, it is not to be concluded that birds and animals did not exist, lodging amid the branches and foliage, and feeding on the fruits of these primeval trees and shrubs, "exemplifying the habits characteristic of their different natures through many successive generations." It must be remembered that the remains of birds are rare, even in later deposits than the carboniferous, simply because, by flight, they are able to avoid casualties, and that their feathers float their bodies, where water prevails, until they decay or are devoured. But they have left their footprints on the soft margins of rivers, lakes, and seas of these ancient days, proving the existence of the feathered tribes, and it is hardly to be supposed that scenes, where stately trees, towering aloft in all the majesty of their gigantic forms, and shrubs, and fruits, and flowers displayed their beauty and exhaled their perfume, could have been without the insect's hum, or the song of the bird. It may be true that no human eye was there to feast on their gorgeous colouring, no human ear to list their songs of joy or praise; but there was an eye to see, and an ear to hear, even that of Him who hath pronounced this work to be very good.

The laws of nature are immutable, and the ages of quiet during the Carboniferous period gradually passed into convulsions which raised or depressed the strata, or filled the cracks and many of the fissures produced by volcanoes with liquid lava, basalt, and galena—an ore from which the lead of commerce is obtained. The immense vegetation was thus greatly destroyed, new mountains made their appearance, new continents arose, a new distribution of sea took place, and the temperature decreased to something like that of the hottest regions of the present time. Wild and confused must have been the scene which the strata would have presented to the eye—elevated, disrupted, torn in every direction—but the disorder was systematic, and the derangement displays benevolence. The contortions of the Coal measures brought into sight, and within the reach of human industry, what otherwise would have been unknown and inaccessible.

As the former strata were named Carboniferous, the strata now formed by the ever active waters upon and around its ruins might be named the Saliferous, from the enormous quantity of salt or chloride of sodium, either in the form of rock salt, or dissolved by means of rain and springs, as brine springs. The salt is one of the natural ingredients of the earth and principally of the shales, and lakes and oceans dissolve it wherever they have come in contact with it. The salt strata have, where they occur, been formed from the evaporation of salt lakes. Along with the salt, were deposited, through the usual action of water, the new red sandstones, intermixed with per-oxide of iron, derived from volcanic eruptions and magnesian limestone.

During the formation of these strata, birds and quadrupeds of many kinds existed, together with a reptile, resembling a frog of great size, from five to six feet long, called the Labyrinthodon; but the per-oxide of iron, or some other agent, has prevented fossilisation of remains to the extent which might have been expected from the advanced state of the world, inasmuch as the thousand specific forms which prevailed during the Carboniferous era are reduced to about one hundred and seventy in that of the new red sandstone. Old forms have gradually died out through several formations; new forms, in fishes and oviparous quadrupeds, now first make their appearance. The footprints of wading birds, larger than ostriches, have been discovered, but it is in the shell limestone, missing in England, but found in Germany, where the more remarkable fossil remains belonging to the marine Saurians are found. The Icthyosaurus or Fish Lizard—about thirty feet long, with jaws expanding seven feet, and an eye eighteen inches in diameter, fitting it for its voracious habits—was one of these common monsters.

It almost sounds like romance that we can tell what happened on any one day of these periods so far past in time as to be almost incalculable, and yet it is so; we can see, as it were, the rain drops as they fell, by the hollows raised in the then soft mud of which the stone is composed, nay, even tell, by the rim raised round the hollow, in what direction the wind blew by the direction of the slant. On the Greensil slabs, near Shrewsbury, this has been noted. It is, therefore, less wonderful that impressions of the smallest bones and minute features of animals should remain to be handed down to us as characters wherewith we may read the leaves of the stone book. How evident it must be to every thinking mind that these hidden evidences of the Creator's work should be preserved for our information. "Seek and ye shall find, knock and it shall be opened unto you," are the words of God, and they as fully apply to the material wonders of His works as to the mysteries of His revealed Word.

CHAPTER VI.

OVER the Red Sandstone, the next sediments deposited were the Oolitic or Roe Stone—literally fish egg systems—made up of the Lias, a sort of limestone mixed with clay of a blueish grey colour, and the true Oolite, consisting of small rounded particles of limestone varying in size from that of marbles to as small as millet seed. Sir C. Lyell thus describes the origin of this formation—"We must conceive a sea in which the growth of coral reefs and shelly limestone, after proceeding without interruption for ages, was liable to be suddenly stopped by the deposition of clay sediment. Then, again, the argillaceous matter, devoid of coral, was deposited for ages, and attained a thickness of hundreds of feet, until another period arrived when the space was again occupied by calcareous sand, or solid rocks of shells and coral, to be again succeeded by the recurrence of another period of argillaceous deposition."

The animal remains of the Oolitic systems are numerous, and of high zoological interest. New forms seem to have been created in abundance, and the waters once more seem to have swarmed with life—star fishes, sea urchins, shell fishes, worms like the common earth worm, king crabs, fishes with regular enamelled plates and tails unequally divided, a feature now confined to a few existing fishes. Insects, too, like the beetle and dragon-fly, were there;

and Sauroid reptiles like existing crocodiles, tortoises, and turtles, but of different habits; and, lastly, Flying Lizards and Mammalia—now first appearing—allied to the Oppossum family., The era may be considered peculiarly that of the Sauroid race, and of the Ammonites, Belemnites (kindred to the cuttle-fish), Nautili, Pentacrinites, Gryphea, &c. The remains of the Ichthyosaurus are now found in this country; but the Plesiosaurus, or Flying Lizard, is, perhaps, the strangest in form of all—furnished with bat-like wings wherewith to fly. Most interesting of all, the first of the series Mammalia, in the form of a Kangaroo and one of that family, made its appearance—the first of the warm-blooded races which were afterwards to attain their climax in man.

Above the Oolite, and gradually verging into the Cretaceous or Chalk system which covers it, occurs the Wealden Clays—a sediment of sand and mud so quietly deposited that it contains imbedded the remains of terrestial and fresh water creatures and shells in myriads. The whole south-east of England is supposed to have been the estuary of one of the largest class of rivers rising near Newfoundland, and having its course enclosed during its whole length, by banks, to its mouth on the coasts of Kent and Sussex.

In a passage of striking beauty, the author of the "Vestiges of Creation" thus describes the Oolitic period —"The imagination eagerly aspires to picture the world of the Oolitic era, when there were scarcely any living creatures of more exalted character than reptiles. There were then vast tracts of dry land, as now; their surface bore a luxuriant vegetation of no mean kind. The meteoric agencies, the rise and fall of tides, were common phenomena of that time, as of the present. Day after day, through long-drawn ages, the sun passed on his course. Night after night, the sparkling garniture of the sky looked down on this green world. But a being of superhuman intelligence, coming to examine our globe, would have seen all this existing only for fishes, and still humbler creatures in the sea; and for reptiles, insects, and, perhaps, a few birds, and still fewer opossums, upon land. He would have beheld the tyrant sauria pursuing their carniverous instincts upon the wave, upon the shore, and even in the air; huge turtles creeping along the muddy coasts; still more huge megalosauri traversing the plain; and, with all this, the air filled with multitudes of insects. But no flocks would have met his eye upon the mountains, no herds quietly roaming in the valleys. He would encounter no tiger or elephant in the jungle. None of the smaller mammalian quadrupeds—as the dog, the genet, the hedgehog, the hare, the mole—would have presented themselves. And not only were no human beings to be seen, but our supernatural visitant would know that this scene must be spread out, in perfect capability for their reception, during whole millenniums before such beings were to exist; the stream flowing and glittering in the sun, but not to cheer the eye of man; the season passing, but not to yield its fruit to him; the whole jocund earth spread out in unenjoyed beauty, as yet unwitting of the glory and gloom which human impulses were to bring upon it. How strange to reflect on the contemplations of the supposed visitant! What a vast void! What a stretch of time before there was to be even a commencement to its proper filling! And yet the certainty that, in good time, in the ripeness of the plans of the mighty Author, the higher animals were to come; and, among the last, the creature of creatures who, in his infinity of device, was to turn it all to his use—the historical being of the world!"

The last or uppermost of the secondary strata is the Cretaceous or Chalk, and is so named, not because wholly composed of chalk, but from its forming the most important portion of the system. Green sand gault or marley clay make up the remainder. Mixed with the chalk are layers of flint, in nodules, often extending for miles in regular lines, as if stratified. It is hard to conceive, on a cursory examination, that these nodules are little less than masses of extinct life. Yet, in all probability, this is so, inasmuch as they contain remains of sponges, echinites, &c., the nuclei round which the particles of silex accumulated. Dr Carpenter says—"It may be stated as a fact beyond all question, that nodular flint and other analagous concretions (such as agates) may generally be considered as fossilised sponges or alcyonian zoophytes, since not only are their external forms and their superficial markings often highly characteristic of those organisms, but when sections of them are made sufficiently thin to be transparent, a spongy texture may be most distinctly recognised in their interior." Wondrous as this fact is, it is not more so than that the chalk itself is composed partly of inorganic particles, the decay of corals, and partly of shells once inhabited by living creatures, many so minute that a cubic inch of chalk would contain above ten millions of them. The great microscopist, Ehrenberg, to whom we owe this discovery, has succeeded also in pointing out that some of the species belong to the Nautilus family. He has also discovered microscopic sea plants in the chalk. The strata are deficient in terrestrial organic remains; but, in other respects, the fossils, which are almost all marine, are numerous and beautifully preserved. Sir Henry de la Beche remarks—"Organic remains are in general beautifully preserved in the chalk; substances of no greater solidity than common sponges retain their forms; delicate shells remain unbroken; fish even are frequently not flattened; and altogether we have appearances which ustify us in concluding that, since these organic exuviæ were entombed, they have been protected from the effects of pressure by the consolidation of the rock around them, and that they have been very tranquilly enveloped in exceedingly fine matter, such as we should consider would result from a chemical precipitate."

"How wonderful in such,
To read the antique history of the earth stamped upon those medals in the rock,
Which design hath rescued from decay to tell of the green infancy of time;
To gather, from the unconsidered shingle, mottled star-like agates
Full of unstoried flowers in the budding bloom chalcedony,
Or gay and curious shells fretted with microscopic carving,
Coralline and fresh sea weed spreading forth their delicate branches."

Ammonites, Belemnites, and other Cephalopods are very prevalent. Fishes of a higher order, and more resembling those of our own time, now first appear in the Cretaceous system; but the reptiles are the most interesting, and principally the great Mesosaurus, a gigantic marine reptile.

This monster now supplants the Icthyosauri and Plesiosauri, the former tyrants of the ocean, which, on their mission being ended, have become extinct. Remains of monkeys, too, are discovered in the chalk, along with tropical plants, arguing the prevalence of a tropical climate during the deposition of these strata.

"It is impossible to give an idea of the beauty of the scenery during the time when England had a tropical climate; but so magnificent were its vegetable productions that they must, if they could have been seen with human eyes, have commanded the highest admiration. One scarcely knows which most excites wonder—the deep silence of those solitudes, the individual beauty and contrast of forms, or that vigour and freshness of vegetable life which characterizes the climate of the tropics. Large and beautiful trees grew thickly one by another, and creepers encircling them rose still higher than the trees, and covered them with a varied profusion of the choicest flowers. In the interior of the island, there were beautiful lakes, and the rivers running from them were walled in by the forest, so close that no ray of light could penetrate through the verdant branches; but each river, like a walled canal, held on its shining way, through walls of flowers, towards its home in the great sea, murmuring and crying when rocks or stones obstructed its return, leaping recklessly and fearlessly over precipices, and gurgling and laughing as it made its escape to pass noiselessly over a smooth bed of shining pebbles."

We have now arrived at the last of the divisions, the Tertiary. Although long periods of comparative quiet had passed during the deposition of the Cretaceous system, the forces which we have seen so often previously called into operation were again set in motion, and the Pyrenees, the Alps from the Mediterranean to Mont Blanc, and many chains of mountains besides, were the result of the disturbances. These upheavals carried upward the secondary deposits, producing an almost total change of land and sea. The downs of Southern England, for instance, were the beds of deep ocean; and it would almost appear that, prior to the deposition of the Tertiary strata, a general elevation took place of all that portion of the earth's crust required for the development of a higher order and more extensive system of organic life than had previously existed in any former era.

In the hollows and basins formed in the chalk and upper strata, masses of clay, limestones, marls, sand, and gravel have been deposited, loosely congregated, of no great thickness, yet exhibiting unmistakeable evidences of stratification, and of having been deposited as sediments from lakes, rivers, or the ocean. The basins of London and Paris are illustrations on a large scale. But, besides these, other causes served to increase, in extent and thickness, the Tertiary formation, viz., the evaporation of inland lakes, the wear and tear of the land from rivers, mountain torrents, the action of rain, frost, disentegration of rocks by atmospheric influences, the growth and decay of animals and vegetables, the action of light, heat, electricity—in fact, a general exercise of those physical agencies which have produced such changes in the preceding ages, and upon former stratifications.

> "See how the torrent rolls the golden sand
> From the high ridges to the lower ground;

The lofty lines abound with endless store
Of mineral treasure and metallic ore."

The Tertiary era has been divided, by Sir C. Lyell, into four distinct periods, marking the prevalence of life identical with forms now existing. For this purpose, he has used shell-fish—one of the most remarkable features of the system—as a guide in his arrangement or division, inasmuch as the quantity found varies in accordance with the strata in which they are imbedded. "The Eocene, or dawn of recent animals, at the bottom contains little more than 3 per cent. of surviving species; the Miocene, or less recent, contains 18 per cent. of existing species; the Pliocene, or more recent, 50 per cent.; and the Pleistocene, or most recent, from 90 to 95 per cent. of existing species."

While the former stratifications contained organic remains obviously different and entirely distinct from those of our day, the Tertiary contains remains akin to very many, indeed, most of the animals now in existence; and, as the surface is approached, those species become more general, while the plants also approach more nearly to those of our time, but telling generally of a tropical climate. The change between the eras zoologically is most marked, so much so that the close of the secondary formation would almost seem to have witnessed a mighty cessation of life, while the commencement of the Tertiary was followed by a new creation.

The mammalia of the Eocene period in Europe are highly important, and include the Pachydermata, or thick-skinned animals, and others allied to families now confined to tropical climates. Remains of the first hoofed animal, the Anoplotherium, have been discovered in the Paris basin. It is supposed to have been as large as an ass, but not so high, with a long tail, and although its habits were aquatic, it was accustomed to browse on land. In America, the same Eocene formation has been found to contain the Zeuglodon, a herbiverous-feeding whale with an enormous tail, and reaching altogether to 100 feet in length. Fresh-water reptiles also existed, and serpents, birds, racoons, foxes, bats, and monkeys.

In the Miocene, fossils are found of animals allied to the bear, horse, dog, and to the feline family; but the Dinotherium—exceeding the size of the largest elephant—an inhabitant of fresh-water lakes and rivers, is the most remarkable.

The Pliocene period is the era of gigantic thick-skinned animals, of elephants, the Mastodon, and Mammoth, and of the principal mammalia, including hyenas, badgers, otters, weasels, and wolves. In England, the hippopotami tenanted the fresh-water lakes, the rhinoceros wallowed in the marsh, or forced its way up through forests, in which roamed the tiger and a still more ferocious and destructive feline neighbour, the Chairodus, with leopards, lynxes, and wild cats. On the plains, fed colossal oxen of enormous strength, and deer like the Irish elk in size, the reindeer, roebuck, and goat, while, in the caverns, the Ursus Ferox found a hiding place and a den. Of this age, also, may be named the giant sloth of South America, larger and more cumbrous than the elephant, the Megatherium and Mylodon, which subsisted by breaking down and devouring trees, and the extinct kangaroos of Australia, as large as the Megatherium, accompanied by a carnivorous quadruped rivalling the lion in size, but like all the inhabitants of that singular country, marsupial in its habits. But, in fact, the story of strange forms and habits of the extinct races reads more like the creations of romance than the sober narrations of reality.

"No one who has not examined for himself can conceive the vast extent, the incredible wealth and profusion, of nature in this perpetual production of new forms and structures from time to time as circumstances have changed throughout the world's history. Of all these, a multitude of examples, no doubt, remains; but what are they in proportion to the number that is lost? We grope about in the dark, picking up here a little and there a little; but we can never hope to recover and bring to light all that is left, and there must remain to the last, in the great burying-place of nature, a far larger series than the most searching investigation of man will ever bring to light. Could we even attain to a complete knowledge of organic remains, we should have made but one step, and that an imperfect and incomplete step, towards an acquaintance with the life that has passed away, for there must still remain large gaps to be supplied of such animals as pass out of existence, and leave no durable skeleton or hard part capable of conservation."

'Tis thus "are traced the footsteps of Old Time,
Long fossilized."

In recent aggregations of what has been called the loose clothing of the earth, we meet with the remains of man and contemporaneous animals and plants, with human utensils and ornaments also, characteristic of the ancient British age in our own country, the Etruscan in Italy, the

Pelasgic in Greece, the eras of the Pharaohs along the banks of the Nile, and of the ancient Hindoo dwellers by the Ganges; but we discover no bones of those races in earlier stratifications than those which were formed long subsequent to man's creation—the great drift era.

In concluding this portion of our subject, and, as it were, to supply to the reader a condensed view of the strata and their contents, it may be useful to subjoin a tabular view of the fossiliferous strata as arranged by the Rev. Dr King.

GROUPS OF FOSSILIFEROUS STRATA OBSERVED IN WESTERN EUROPE,

Arranged in what is termed a Descending Series, or beginning with the Newest.

POST-TERTIARY SERIES.

This group is now in the course of formation. It includes all geological phenomena which have had their origin since the close of the Tertiary period. Here we have the bones of man in a fossil state, and articles fabricated by man. Comprehends beds of shelly gravel, the shells in which are of existing species.

TERTIARY, OR SUPRA CRETACEOUS, *i.e.* above the Chalk with which the uppermost of the Secondary series commences.

1. Newer Pliocene,—*i.e.* Newer of the 'more recent' Tertiary strata, (from πλειων, *pleion*, more, and καινος, *cainos*, recent.) The period of this group has been called 'the epoch of gigantic mammalia.'—In this 'period, immediately preceding the existence of man, the earth teemed with large herbiverous animals, which roamed through the primeval forests
beasts of prey.' 'Its remains are

related to the elephant, as the mammoth, mastodon, etc., and to various species of hippopotamus, rhinoceros, horse, ox, deer, and many of extinct genera; while, in caverns and fissures of rocks, the skeletons of tigers, boars, hyenas, and other carniverous animals, are imbedded.' The teeth of elephants, collected on the coasts of Norfolk and Suffolk alone, according to Mr Woodward, have belonged to 500 individuals.

2. Older Pliocene, – *i.e.* Older of the 'more recent' Tertiary strata. To this group belongs a deposit called the 'crag.' In the eastern part of the county of Suffolk, it is seen in its most characteristic form. In part of Suffolk, it consists of two masses, – the upper of which has been called 'red crag,' and the lower 'coral crag.' The two are exceedingly distinguishable in mineral composition and fossils, and geologists have felt some difficulty in accounting for the difference.

3. Miocene, – *i.e.* 'Less recent' than Nos. 1 and 2, (from μειων, *meion*, less, and καινος, *cainos*, recent.) The Tertiary deposits of England are limited to the Eocene, and the older and newer Pliocenes – the Miocene being wanting.

4. Eocene, — *i.e.* New dawn (ηως, *eos*, dawn, and καινος, *cainos*, recent.) So called because among the remains of extinct species some remains, though in a small proportion, of living species, begin here to be discovered, so that the new or present state of the world dawns upon us. To this group belongs the London clay, so called because found in the neighbourhood of the metropolis, in a basin of the underlying chalk. The fossils differ widely from the overlying crag. The shells resemble those of the tropics, but few of them are identical with living species. 'Some fish, also, such as a sword-fish, about eight feet long, and [illegible]-fish, about ten feet in length, indicate a warm climate.'

SECONDARY.

[illegible] it consists in part of that white earthy [illegible] name chalk is applied. Abounds in marine remains, as corals, sponges, shell-fish. Contains some reptiles. With the termination of the Secondary period the ammonite ceased to exist. It is found here and in the under strata, but not in any overlying deposit. The ammonites derive their name from their supposed resemblance to the horns of the statues of Jupiter Ammon. 'All the appearances concur in leading us to believe that this deposit was formed in a deep sea, far from land, and at a time when the European fauna (race of animals) was perfectly distinct from the Tertiary period.'

6. Green Sand,—so called because some of the sands of this formation have a bright green colour. The green grains consist mostly of silicate of iron. Fossils similar to those of the chalk, but generally of different species. 'Unlike the white chalk (remarkable for its purity) this deposit consists of a succession of ordinary beds of sand, clay, marl, and impure limestone, the materials of which would result from the wearing down of pre-existing rocks.'

7. Wealden.—The sub-divisions of this group may be best studied in that part of Kent, Surrey, and Sussex which is called the Weald—hence the name. It also appears in the opposite coast of France. The shells of this group are almost exclusively those of lakes and rivers, and though it is not very extensive, it is deemed of great interest as being a fresh-water formation interposed between marine formations. Contains numerous and varied remains of terrestrial plants and animals. Tortoises, like the genera now found in tropical regions. At least five genera of Saurian Lizards; one of which, the Iguanodon, was of vast length. 'Length from the mouth to the tip of the tail 70 feet.' 'Thigh bones 8 inches in diameter. Such bones, if covered with muscles and integuments, would form limbs upwards of 7 feet in circumference.' 'Some individuals must have far exceeded this estimate.' Some writers consider these dimensions exaggerated. Ansted, for instance, says:—'While the bones of the extremities were perhaps six or eight times

larger than those of the most gigantic alligator, the whole length of the Iguanodon is not likely to have exceeded thirty feet.'

8. Upper Oolite, or egg-stone, (*ωον*, *oon*, λιθος, *lithos*,) a variety of limestone composed of rounded particles, like the roe or eggs of a fish. The name has been given to a whole group in which this limestone occurs. Here, we have a great series of marine strata under the Wealden, a fresh-water deposit.

9. Middle Oolite.—'One of the limestones of the Middle Oolite has been called the "Coral Rag," because it consists in part of continuous beds of petrified coral, for the most part retaining the position in which they grew at the bottom of the sea.' Another subdivision is the Oxford clay.

10. Lower Oolite.—'The slate of Stonesfield, only six feet thick, but abounding in fossils, has been shown to be at the base of the inferior Oolite. Besides fragments of wood which occur in all parts of the Oolitic group, there are many impressions of ferns, cycadeæ, and other terrestrial plants. Several insects, also, and among the rest the wing covers of beetles, are perfectly preserved.' In these strata are the earliest remains of terrestrial mammalia as yet found.

11. Lias.—This is a provincial name for a particular kind of limestone,—here employed to denote a group of strata in which it is found. Classed by some geologists with the Oolitic strata. The fossil fish resemble generically those of the Oolite, are all of extinct genera, and differ widely from those of the Chalk. 'It is not, however, the fossil fish which form the most striking feature in the organic remains of the Lias; but the reptiles, which are extraordinary for their number, size, and structure. Among the most singular of these are several species of Ichthyosaurus and Plesiosaurus. . . . It is evident from their fish-like vertebræ, their paddles, resembling those of a porpoise or whale, the length of their tail, and other parts of their structure, that the habits of the Ichthyosaurus (fish-lizard) were aquatic.

Their jaws and teeth show that they were carnivorous; and the half-digested remains of fishes and reptiles, found within their skeletons, indicate the precise nature of their food.' 'The genus Ichthyosaurus is not confined to this formation.'

12. Upper New Red Sandstone, and Muschelkalk. Called also Triassic System.—The sandstone of this group is called red, because much of it is stained by oxide of iron. There is found associated with it in Germany a great chalky formation, called the Muschelkalk or Shelly-limestone. 'It is in this system that rock-salt and salt-springs occur in Cheshire and other parts in England.' 'A few traces only of fossil shells, fish, and plants, have been detected in this formation in England.'

13. Magnesian Limestone System,—*i.e.* stone composed of carbonate of lime and carbonate of magnesia, sometimes in nearly equal proportions; and Lower New Red Sandstone. Called also Permian System.—It was first pointed out by M. Agassiz, that all the bony fish of the Magnesian Limestone, and all the more ancient formations, have the vertebral column continued into the upper lobe of the tail, which is much longer than the lower lobe, whereas, in strata newer than the Magnesian Limestone, the tail-fin is divided into two equal lobes, as in most living fishes, the vertebræ not being prolonged into either lobe.

14. Coal.—The bulk of this formation consists of sandstone, shale, and limestone; but many beds of coal are interstratified with them—hence the whole are called carboniferous or coal-bearing. 'The coal is entirely compressed land vegetation, chiefly from trees of a great size, whose stems, branches, leaves, etc., are abundant in or on the interposed shales and sands.' 'One of the most remarkable peculiarities of the coal fossils is the singular preponderance of the tribe of ferns, and the great variety of form in which plants of this kind are developed.'

15. Old Red Sandstone. Called also Devonian System.—In the Lower Old Red Sandstone the ganoids first appear. So far as is yet known, all the fish of the earliest fossiliferous system

(Primary, exhibited below) belonged to the placoid, or broad-plated order—a great division of fishes represented in the existing seas by the sharks and rays. In accommodation to the mutilated state in which fossil fishes are frequently found, Agassiz classified them according to the structure of the scales. He divided them into four orders. (1.) Placoidians (from πλαξ, *plax*, a broad plate.) (2.) Ganoidians (from γανος, *ganos*, splendour, because of the brilliant surface of their enamel.) (3.) Ctenoidians (from κτεις, *cteis*, a comb.) (4.) Cycloidians (from κυκλος, *cuclos*, a circle.) Hugh Miller says —'It is not too much to affirm, that in the comparatively small portion which this cluster of islands (the Orkneys) contains of the third part of a system (the Lower Old Red Sandstone), regarded only a few years ago as the least fossiliferous in the geologic scale, there are more fossil fish enclosed than in every other geologic system in England, Scotland, and Wales, from the coal measures to the chalk, inclusive. Orkney could supply with ichthyolites (fossil fishes) by the ton and the ship load, the museums of the world.'

PRIMARY FOSSILIFEROUS OR TRANSITION.

16. Upper Silurian,—so called by Sir R. Murchison from that part of England and Wales which constituted the ancient British kingdom of the Silures, where this group can be best studied. 'The most remarkable fossils are the scales, ichthyodorulites (bony spines forming the anterior part of the dorsal fin), jaws, teeth, and coprolites (excrements) of fish of the Upper Ludlow rock. As they are the oldest remains of vertebrated animals yet known to geologists, it is worthy of notice that they belong to fish of a high or very perfect organisation.'

17. Lower Silurian. 'It is an interesting fact, that with many extinct forms of testacea (animals devoid of bones, with soft bodies, and having a shelly covering) peculiar to the Lower Silurian, others are associated belonging to genera still existing, as nautilus, turbo, buccinum, turritella, terebratula, and

orbicula.'—On the authority of Murchison. 'No land plants seem yet to have been discovered in strata which can be unequivocally demonstrated to belong to the Silurian period.'

18. Cambrian and older fossiliferous strata. Professor Sedgwick has given to this group of rocks the name Cambrian, because it is largely developed in North Wales. There succeeds a group called the Cumbrian (studied with advantage in Cumberland), in the upper portion of which some fossils are found, and these are the oldest monuments of life as yet discovered.

"I may add, that under these fossiliferous strata we have very extensive deposits, which the older geologists called primitive. They are now called non-fosiliferous, or metamorphic. They contain marks of stratification, but instead of being mechanical aggregates, they are highly crystalline, in consequence, as is thought, of having been subjected to igneous agency. Such are micaceous schist, hornblende schist, and gneiss."

We have thus completed a hasty examination of the formation and conditions of the stone leaves of the Geological volume, and drawn attention to a few of the wondrous forms and origins of life which, as it were, supply its pictorial illustrations, and we now come to consider the object and character of that Book which professes to declare who is their maker, and to inform us for what end "they are and were created."

In the words of Hugh Millar—"In the coming time, it will be seen by all what a noble vestibule the old Geologic ages form to that human period in which moral responsibility first began upon earth, and a creature destined to immortality anticipated an eternal hereafter."

Geological examinations successively unrol the sublime truth that neither the present nor past terrestrial conditions are the results of chance, memorials of decay, or of defective arrangement; but that their very instability—the result of mighty agencies—is but an evidence of forethought, extending backwards into eternity, magnificent in design, glorious in execution, and full of benignity in its future, and thus establishes incontestably the conclusion that all has been begun and carried on under the direction of Divine intelligence and power.

CHAPTER VII.

In this age of intellectual activity, nothing has been so marked as the spirit of enquiry into the grounds on which the Christian's faith has been built. Sceptical opinions and productions have been sown broadcast by men of high attainments, other than faith in Revelation. Science, history, morals, poetry, fiction, and essay have become tainted with a poison not the less deadly that it has been administered under the guise of healthy aliment. Much of this is owing to the epidemic of unbelief which every now and then breaks out among nations; much, to hasty generalization of false facts, hasty conclusions drawn from suppositions; more, to a burning desire on the part of some men of science to be distinguished. They work out a sensation theory, even at the cost of dethroning the Almighty, and make nature a God to herself, in order to propound a novel idea.

Attempts to reduce the truth of God to a peradventure are not new, nor are the attacks on Christianity, through Judaism, by weapons forged by means of science, uncommon. Occasionally, the novelty of the manner of attack, or the shape of the weapon, produces surprise; but, hitherto, the encounter has ended in favour of truth. From the days of the Apostles until now, the great battle-field has been the Pentateuch. The scientific or historical facts therein contained have seemed to afford points on which scepticism might apparently direct all its artillery. The Mosaic record, forming the foundation of revealed religion, once breached, the whole fabric would be shaken.

It is true, the enemy alleges the contrary, nay, urges that, were the whole swept away, Christianity would remain untouched, untarnished, and equally powerful. Not so. The whole Revelation is a perfect unity and cannot be dissevered or pierced without resulting in evil consequences. Because many of the Mosaic assertions and narrations cannot be adapted to the notions of their readers, they are pronounced impossible, fabulous, unhistoric, or, at best, the legendary creations of the past founded on some slender basis of traditional fact in the world's infancy.

Without contemporaneous records to which to appeal for confirmation of their truth on many points, with scientific facts misapplied, and scripture teaching misunderstood, the writings of Moses have yet come scaithless out of the ordeal. Advancing science, higher scholarship, modern discoveries of entombed remains of former ages have, however, borne witness to their veracity; even our Lord himself has confirmed their testimony by declaring to the unbelieving Jews—"For, had ye believed Moses, ye would have believed me, for he wrote of me."

The new science of historical criticism, by which it is intended we should separate fanciful accounts from facts, and thus determine truth from fiction, historical from legendary record, cannot be applied rigidly to the writings of Moses. Even were they convicted of statistical inaccuracy, or want of philosophic precision, no conclusive argument could be based on these points arguing their want of truth, seeing that their design was to illustrate the Divine government, reveal the coming of the Messiah, the redemption provided for mankind, and the salvation of believers in Christ Jesus. It must also be borne in mind that, although the Scriptures were given by inspiration, *that* inspiration belonged to the original writings, not to copies or translations into other tongues. Happily no apology is required, nor plea made, for our translations, or on account of discrepancies which have crept almost inevitably into the text, and yet on many of these the attacks by sceptics on the Scriptures are based. The labours of Houbigant, and many others, in the comparison and collation of hundreds of copies in the Hebrew language, and in translations, as well as in detecting discrepancies, transcribers' mistakes, or annotators' explanations which have crept into the text, says the Rationalist, Eichorn, "hardly offer sufficient interest to compensate for the trouble they cost," and, says the learned and acute Critic, Bentley, "choose out of the whole MSS. as awkwardly as you will, choose the worst by design out of the whole lump of readings, and not one article of faith or moral precept is either perverted or lost in them. Put them into the hands of either a knave or a fool, and, even with the most sinistrous and absurd choice, he shall not extinguish the light of any one chapter, or so disguise Christianity but that every feature of it will remain the same."

It has been urged that, in addition to the errors which may have crept into the text from mere transcribing, it is by no means certain that, even in important matters, the originals have been followed, or that the true copies made have been transmitted to us, seeing that the original writings, deposited first in the Ark, and afterwards, along with those added between the times of Joshua and David, removed to the Temple of Solomon, were either burned or were carried to Babylon in the invasion by Nebuchadnezzar. In reply to the first objection—"It would be no easy thing," says Bishop Stillingfleet, "to forge a Magna Charta, so as to delude a whole nation. The Scriptures were to the Jews much more than a Magna Charta, and were so interwoven with the religious, political, social, and domestic life of the nation that the relation of a lie in their history, or the falsification of the accounts of those momentous occurrences, by which it was accompanied, was utterly impossible."

The custody of the writings was jealously watched by a particular tribe set apart for this purpose. Their textual correctness against corruption was guarded against by the extensively diffused knowledge of their contents through every class of the community. Kings, priests, magistrates, and heads of families required copies, and the severest penalties were enacted against any addition being made to, or any portion being taken away from, the text. Apart from the traditional veneration for the Scripture by the people themselves, it contained the laws defining territory, family rights and inheritance, the succession of the priesthood, and household government, so that it was continually in their hands and engraven upon their thoughts and memories. This traditional sentiment finds its culminating point in the account, which has been preserved in the Talmud, of certain directions which were to be observed by the scribes whilst preparing a roll for the use of the synagogue. First, the parchment must be of a particular skin, the ink of a special preparation, the lines of uniform width apart; and if three words only were written without a line, the manuscript was thrown aside as unfit for use. The scribe must sit, while he is copying, in his full official dress. He must retire for a special act of purifying, every time he comes to the name of God. If a king or great man should speak to him while he is writing, he is not to take his eyes off the roll. Stroke for stroke must he keep to his authentic copy, forbidden to put down even a "yod" from memory; whilst, should there be discovered on the revise as many as four mistakes in one column—even such a thing as one word touching another, or a deficient or redundant letter—the labour of thirty days was lost, and the manuscript commanded to be destroyed. It is further to be noted, that few of these synagogue rolls ever fell into the hands of Christians or of strangers. When they became worn out and unfit for further use, in order that no desecration might befall them, they were ordered to be buried in the earth.

To the second objection it is replied, it is not only highly probable that copies of writings, to them so important, would be in the hands of many of the captives, but it is certain that Daniel quotes the laws of Moses. At the rebuilding of the Temple, Ezra, himself an inspired man, after diligent collection and collation of all existing copies, made a complete copy in the Assyrian character as accurate in matter, though not perhaps perfect in textual minuteness, as the original. Why the Assyrian character was employed was simply that, during the 70 years captivity, the old Hebrew or Samaritan characters had become to the younger Jews obsolete. The copy made by Ezra shared the fate of the former, having been burned by that scourge of the Jewish nation and persecutor of their religious faith, Antiochus Epiphanes. "When Judas Maccabeus recovered the City and the Temple, the Lord guiding them," he ordered an accurate transcript to be made from copies existing in other synagogues, which was again deposited in the Temple, and, it is supposed, was lost at the seige of Jerusalem in the first Christian century. These various misfortunes, and particularly the last two related, have been repeatedly urged, as telling against the accuracy of "The Word;" but it must not be forgotten that, nearly 300 years previously, a translation had been made into Greek, the Septuagint, by "the seventy."

Depriving the relation of this transaction of all tradition, the historical fact stands thus. About the year 277 B.C., Ptolemy Philadelphus, king of Egypt, then founding the famous library at Alexandria, desired to possess a copy of the sacred writings and laws of the Jews, and requested the then High Priest to send him the Books, with six persons from each tribe capable of translating them from the Hebrew character, unknown to the Egyptians, into the Greek language, understood by them. The seventy-two translators executed their task so faithfully that their work was looked on with pride by the Jews, was held in sacred estimation, and was publicly read in the synagogues in Judea. Even He who was Himself "the Truth and the Word" most commonly, in referring to the Old Testament Scriptures, made use of the Septuagint as the medium of his citations. That the feelings of the Jews to this version have changed, there can be no doubt, and why? Because Jesus of Nazareth stamped it with His approval. From the destruction of Jerusalem by the Romans, learned and devout men, with industry and in humble faith, devoted their lives to the preservation and multiplication of the sacred writings, down to the fifteenth century, when printing closed the labours of the transcriber.

So runs, shortly, the record of the preservation and transmission of the Scriptures from their deposition in the Ark to the modern printed page. For a more minute account, the reader is referred to the admirable work by Daniel Moore, M.A., "The Divine Authority of the Pentateuch Vindicated."

The genuineness of the writings, as we possess them, having been established, it will not be out of place to consider their object. "The ascription, then," says the Rev. W. Hoare, "of all created matter, and of all the forms of it, to the one true God, was clearly the main object of the writer. Contrasted and confronted with this great idea, we must place before our minds the prevailing errors which were abroad, and with which Moses had to contend. We must remember how divinity had begun to be ascribed to the various forms of nature, to the 'greater lights' of the sun and moon, and to all the beauteous constellations which sparkle in the heavens and appear like presiding spirits to the earth, how the worship of universal nature had spread everywhere, how kings and heroes had been deified, and men paid divine honours to their fellowmen. It was the work of Moses to demolish this material Pantheon, and to build upon its ruins the foundations of a purer worship, the acknowledgement of the one Supreme Creator. The whole world was to be exhibited as His temple, made for His express service, and peopled by various gradations of creatures, each in his capacity fitted to show forth His praise. Man especially was nature's high priest, alone among the creatures capable of giving distinct and intelligent utterance to the praises of the Omnipotent. The writings of Moses hold no ordinary place in sacred literature. They exhibit the commencement of a scheme, imperfectly developed at first, but running through and pervading the whole of Scripture. They furnish the first link in the great chain of revelations which lead up, by gradual and successive stages, to the establishment of Christianity itself. In the promised seed of the woman, in the royal priest, Melchisedec, in the sacrifice of Isaac, in the eventful history of Joseph, the protector and preserver of his brethren who had betrayed and delivered him over to death, in the institution of the Passover, in the whole office and character of the Jewish Lawgiver, as well as in the sacred furniture and mysterious rites of the Tabernacle, we have the first glimpses and the ever-growing types and shadows of the 'greater prophet' that was to come into the world." When we thus understand that these writings point to the incarnation of God in Christ, we cannot fail to see how that event confirms their truth, and we cannot believe that the Divine building of Christianity could be founded on an imposture or a delusion. The Mosaic history formed the introduction to that volume completed by the Apostles of Jesus Christ.

CHAPTER VIII.

WITHIN the range of literature there are no writings, treating of subjects incomparably the greatest and most important, so remarkable for simplicity of style as the Scriptures. The writings of Moses, embodying descriptions of scenes, and narratives of events, unparallelled in sublimity and grandeur, are yet given in language so pure and so simple, that both scenes and narratives present themselves clearly to the understanding even of a child. And yet, perhaps, there are no writings which have occasioned so much discussion, in order to find out their precise meaning, on many points; and that simply on account of the brevity with which the various all-important subjects are discussed. Men who desire to know the how or the wherefore of any occurrence, and men who, entertaining certain opinions, be it on science or theology, cannot have their curiosity gratified, or their opinions harmonised with the inspired writings, uniformly fall back on a doubt of the authenticity or inspiration of the records. We have seen how carefully, and with what certainty and purity, the writings have been transmitted to our times from the date of their composition and their deposit in the Ark, where, and in the Temple of Solomon to which they were removed, they were guarded with such jealous care.

It will now be interesting, by way of meeting some of the most common objections, to consider the character of the writings, and the character of their author, Moses. Great difference in style prevails in these ancient writings according to the subject dealt with—history, biography, prophecy. Nor is this wonderful, seeing that they were penned by different hands, at different times, under circumstances differing widely. Their object was, as has been already remarked, not mere history, and certainly not science; and, therefore, if deficient in that statistical accuracy, sequence of event, or logical precision of thought and expression, which historic writings require, or that form of description or nomenclature which modern philosophy employs, exception is not to be taken to them in consequence. Their aim and object was specific, and to that everything else was subjected, or only incidentally noticed. The historical facts related are borne out by the histories of Egypt, Babylon, and other nations—contemporaries of the early Jewish nation. The local and topographical remarks are so minute, that travellers declare the Bible the best guide-book to the Holy land. On matters of social detail, or connected with the politics, commerce, laws, the usages, and institutions of the ancient Egyptians, it is so minute and clear, that it forms almost the only reliable information we possess of a people whose histories were so fabulous and incoherent. That these incidental remarks are reliable, and could only have been written by one who knew the people as well as they did themselves, their disentombed monuments testify. Full of vigour, unchastened boldness of thought, abrupt transitions, simple phrases, and sublime imagery, the style is just what might be expected at so early a date; besides, the Pentateuch contains verbalisms of clearly Egyptian origin, and exhibits evidence of the author being educated in "all the learning of the Egyptians."

The Scriptures are written for the comprehension of men, learned and unlearned, of all time and under every circumstance of life. They are not adapted specially to the views of philosophers, or even the common people of the nineteenth century, but to the state of knowledge and the prevalent opinions of mankind generally, and were originally addressed to a people very slightly removed from barbarism. Their descriptions of objects mostly are as they appear to the common eye, and not in their real nature, according to optical, and not physical truth. They correct none of the errors which on such points prevailed, simply because those to whom they were addressed were ignorant of science, and almost incapable of spiritual and abstract ideas. Nay, the character and operations of Jehovah are described, says Dr J. Pye Smith, "in language borrowed from the bodily and mental constitution of man, and from those opinions concerning the works of God, in the natural world, which were generally received by the people to whom the blessings of revelation were granted." This, of course, gives a notion of God infinitely beneath the glories of His character, but to uncultivated minds, it was the only representation of His character that could give them any idea of it. Nay, in this enlightened age, such descriptions are the most impressive to the mass of mankind, while the enlightened find no difficulty in arriving at the pure truth respecting God, from these comparatively gross descriptions.

If, therefore, such a description of the character and attributes of the Almighty is far less spiritual than the opinions on these points entertained by Christians and theologians of the present day, why should objections be taken to descriptions of natural objects, given in common language easy to be understood? The brief and elliptical character of the writings, a great source of difficulty, is not to be wondered at. Five chapters contain 1500 years of the world's history, and the succeeding five carry us 500 years farther. A few chapters detail the wanderings of a nation for 40 years, and a verse or two, the account of a war or an engagement sufficient to have furnished a history. Within the narrow limits at his command, could the writer have supplied and enlarged on the immense variety of topics his works embrace, so as to give sufficient room for, and information upon, those all-important points which were the aim of his work? Fullness on these matters of necessity entailed conciseness on the others.

As regards the teaching of science, it is absurd to expect, and unreasonable to require, that revelation, which must, from its nature, be a fixed and everlasting thing, should contain minute information on physical science, which is, and hitherto has been, shifting and progressive. Astronomy, Chemistry, and Geology, for instance. De Quincy well observes "God, by a Hebrew prophet, is sublimely described as the *Revealer*. But of what is He the Revealer? Not surely of those things which He has enabled man to reveal for himself, but of those things which, were it not for special light from heaven, must eternally remain sealed up in inaccessible darkness. On this principle, we should all laugh at a revealed cookery. But essentially the same ridicule, not more and not less, applies to a revealed astronomy, or a revealed geology;" and Bertheau remarks "There is no historical work in which the selection and arrangement of the events narrated are so exclusively and unmistakeably regulated by *one* idea, as in the historical books of the Old Testament. Everything is looked at from one point of view—prosperity and misfortune, slavery and redemption, joy and sorrow, are all regarded as operations of God on behalf of his people. The historical writings of the Hebrews are as different as they possibly can be from chronicles and annals, or a mere recital of naked facts."

That Moses was the author of the Pentateuch and other portions of the sacred writings is abundantly vouched, not only by the Jewish nation, and by writers of other nations, but on authority which is unquestionable. The Pentateuch is not an anonymous production, it asserts the author to have been Moses. *Exodus* xvii., 14. He was commanded to write in *the book*, giving evidence of a more extended work than the mere victory over the Amalekites (the subject referred to in the passage quoted), and proving that, even at an early period of his leadership, he contemplated leaving the people a written memorial of the Divine guidance, in connection with a code of laws. It may, however, be remarked that there are certain passages which have been inserted by succeeding writers or transcribers,—for instance, the description of the death of Moses, or other particulars—and this by way of fuller information, explanation, commentary, or the supplying of a modern name better known than an ancient designation.

Rationalistic writers have objected to the unity of the Pentateuch and the authorship of Moses on the plea that he speaks of himself in the third and not in the first person, forgetting that this is the oriental style, that the character of the history and the law demands it, and that the later Hebrew writers employ the same mode. Apart from the internal evidence, the testimony of the Apostles, one and all, is a reference to Moses on every needful occasion; and, in addressing their hearers, it is urged as something from which there could be no appeal, a defiance against any challenge of its truths, or that their message and that of Moses was not one. Peter, in the Temple, declares, *Acts* iii., 21, "God hath spoken by the mouth of all his holy prophets since the world began. For Moses truly said unto the fathers," &c. Stephen, in his address before the Sanhedrim, *Acts* vii.; John, in his heavenly rapture, in Patmos; and Paul, in his magnificent and bold defence, before Agrippa, "saying none other things than those which the prophets and Moses did say should come," *Acts* xxvi., 22. But a higher authority still remains—the highest, not only as to the authorship, but the inspiration and the Divine infallibility of the work—that of our Lord Himself, who thus declares valid the claims of his servant, *John* v., 46, "For had ye believed Moses, ye would have believed me: for he wrote of me;" and that the mission of Moses was divinely accredited, *Mark* xii., 26, "And as touching the dead, that they rise: have ye not read in the book of Moses, how in the bush God spake unto him, saying, I am the God of Abraham, and of Isaac, and of Jacob?" And, moreover, that the words of Moses were like His own, imperishable—*Luke* xvi., 17, *Matthew* xxiv., 35, using the same expression that heaven and earth should pass away before the words of either should fail in accomplishment. The precepts of Moses He enforces, *Matthew* iv., 4; to his prophecies He appeals, *Luke* xxiv., 25; to his examples He directs attention, *Luke* xvii., 26—32; to his ordinances He conforms in the Sabbath and the Passover; and to his exhortations He bears witness, *Luke* xvi., 31. Thus, "He who spake as never man spake" hath declared the writer to be Moses, and the authority under which he wrote to be divine.

Moses, through his father Amram, was the grandson of Levi, and fourth in descent from Jacob. Younger than his brother Aaron and his sister Miriam, his infancy was passed amid strange scenes. The luxury and pomp of Pharaoh's court contrasted sadly with the oppression and cruelty exercised upon his brethren. The reigning Pharaoh "who knew not Joseph," desirous to crush the Israelites by preventing their growth as a nation, had decreed the death of every male child. The birth of Moses was attended, on this account, by circumstances of touching interest. In fear and trembling, had his mother concealed the babe for three months; in sorrow, almost in despair, did she lay down, "by the river's brink," her infant cradled in the ark of reeds her trembling hands had fashioned and daubed with pitch. Who can tell the feelings with which she committed her boy to the protection of her father's God, the intensity of that last burning kiss with which she bade him farewell, hurrying back to her dreary, now cheerless, home, only to wait with beating heart the return of her daughter Miriam bringing tidings of rescue or death. And Miriam, "who stood afar off to wit what should be done with him." What thoughts must have coursed through that intelligent child's mind when she saw the daughter of Pharaoh, attended by her maidens, the flower of the Egyptian female nobility and beauty, in all the pomp of Eastern power, come down to bathe in the sacred waters of the Nile! Unattracted, undazzled by dress or ornament—to her wonderful, in contrast with the homely attire of her mother and their friends—she bends all her attention on the proceedings of the Princess. The ark is seen, her maid is sent to fetch it, she opens it, "and, behold, the babe wept." Affected by the beauty and helplessness of the infant, the woman's heart of the Princess is *touched* with compassion, and little Miriam, seeing and hearing all that passes, proffers her service to procure a nurse, and returns with—all unknown to the royal company—his natural nurse. "The maid went and called the child's mother." What a revulsion of feeling must have taken place in that mother's bosom! How she must have clasped his little form to her beating heart! How fervently she must have offered up her grateful prayers to "the God of Jacob!" "And the child grew, and she brought him unto Pharaoh's daughter, and he became her son. And she called his name Moses: and she said, because I drew him out of the water."

Thus introduced into the court, enjoying all the advantages of courtly breeding and training in the arts of peace and war, including the choicest learning of the day, under the tuition of the wise men thereof, he passed the first forty years of his life. Manetho relates a tradition which declares him to have received a priestly education, and to have been a priest of Heliopolis; and Josephus asserts that, when a young man, he led an Egyptian army against Ethiopia, where the Princess, who had become enamoured of the fine manly youth, opened the gates of Meroë to his army. Probably this, however, may be founded on Numbers xii., 1, where we read of his Ethiopian wife.

"As Joseph's elevation," says Baumgarten, "to the post of grandvizier of Egypt placed him in a position to provide for his father's house in the time of famine, so was Moses fitted, by the Egyptian training received at Pharaoh's court, to become the leader and lawgiver of his people."

It was precisely this mode of training which was the ultimate design of God, not only with Moses, but the Jewish nation. He and they were improved to receive, on a human basis, the superstructure of Divine teaching. The highest honour was within his grasp; but the care of his Hebrew mother, and, no doubt, her teachings during his visits to her as his nurse, had instilled into his mind contempt for the blandishments of luxury and power, and a true love for his brethren, and the interests of his nation. He believed he was destined to be their avenger and deliverer. "He esteemed the reproach of Christ greater riches than the treasures of Egypt." Impelled by these feelings, "seeing one (an Israelite) suffer wrong, he defended him, and avenged him that was oppressed, and smote the Egyptian," *Acts* vii., 24.

The death of the oppressor became known, and thus brought his connection with the court to an issue. *Acts* vii., 25, "he supposed his brethren would have understood how that God by his hand would deliver them: but they understood not." Deserted by the people, and pursued by the king, who determined to put him to death, he sought safety in exile, and found it among the Midianites in the house of Raguel, one of their princes and a priest. Here his occupation was that of a humble shepherd; and here, in the wilds of the Midian desert, he passed another forty years, undergoing a different, but most salutary, training for the great work of his future life—the tending and leading a more important flock. Here, in solitude and communing with his own soul, he learned lessons of vital importance, that God's time was not man's time, that waiting for and listening for the direction of God was absolutely necessary in all enterprises connected with His kingdom, that humility and patience, and not rash fiery zeal, were needful, that to learn to serve was as much required as ability to rule, and that it was necessary to overcome selfishness, pride, and ambition, engendered by his former position in Egypt, ere he entered upon the duties so ardently desired. In such thoughts, and in the composition of the Psalms usually ascribed to him (xc. c.), and probably in the translation, from the Arabic, of the book of Job, it is generally supposed he passed his hours of leisure, and found the instruction and consolation it so well affords in times of affliction. The patronymic names of Eliphaz, the Temanite, and Bildad, the Shuite, point clearly to Idumean (*i.e.*, Arabian) origin; and the style and language, as well as the absence of all directly Jewish allusions, to an earlier date than the Pentateuch.

Moses was thus accustomed to literary composition.

At length, the "set time" drew nigh; the king of Egypt died, but his successor relaxed none of the oppressive measures under which the Israelites groaned; on the contrary, they were increased. But a deep agitation arose in the minds of the people, not in attempts to overthrow the government, but in a general cry for relief to Him who is the avenger of the oppressed,—and God heard them. He remembered His covenant, and called Moses to their redemption.

Feeding his flocks on the meadows of Mount Horeb, there appeared to him the miraculous vision of a bush burning with brilliant flames, and yet not consumed. Hastening to the spot, he heard a voice—that voice which had not been heard for 400 years—commanding him to "put off thy shoes from off thy feet, for the place whereon thou standest is holy ground," and continuing, "I am the God of thy father, the God of Abraham, Isaac, and Jacob." Listening in holy fear, he soon had afforded to him the explanation of the nature and object of the vision, and received his mission—"Come now therefore, I will send thee unto Pharaoh, that thou mayest bring forth my people out of Egypt." The Lord had heard their sighing and lamentations. The hour of their redemption was drawing nigh. But Moses had learned meekness, his false confidence had vanished, he did not doubt God, but he doubted himself—giving way only after Divine reproof, and repeated assurances of God's favour and support.

He was now a humble man.

His departure from Midian is marked by no boasting of the high honour which had been conferred upon him; he simply asks his master and father-in-law, "Let me go, I pray thee, and return unto my brethren which are in Egypt, and see whether they be yet alive." Nay, he even hints nothing in regard to his errand, far less attempts to carry the matter with a high hand. Probably Jethro, like his daughter, rather despised the Jews.

Moses had thus become a modest man.

Starting on his mission, armed with credentials which could neither be gainsayed nor imitated, he at last—after many miraculous sights and wonders of the most fearful and astonishing description, executed for the purpose of breaking down the obstinacy of Pharaoh, and removing the incredulity of the people—brought out, from slavery and the depths of misery, the descendants of Jacob, now a great multitude, "not a weak man in all the tribes," and with 600,000 men capable of bearing arms.

The leader of this mighty host, after such manifestations of his power to compel a sovereign and the whole nation—the most learned and powerful then in the world—to accede to his demands, might easily have obtained, at the hands of those he led, the throne of a temporal monarchy, but he does nothing of the kind, he appropriates no place of profit or emolument to his family; nay, he allows his sons to occupy undistinguished positions among the other Levites, and, at last, appoints Joshua—a man neither of his kindred, family, nor tribe—his successor. Even when the Israelites had so offended by their continued transgressions and murmurings, and had determined to stone to death Joshua and Caleb, for their faithful report of the promised land, and their expression of their confidence in the power and might of the Lord, who had so graciously delivered them from slavery, and continued to guard, guide, and provide for them. "And the Lord said unto Moses, how long will this people provoke me? I will smite them with the pestilence, and will disinherit them, and will make of *thee* a greater nation and mightier than they." The offer, to some men truly captivating, had only the effect of inducing Moses to plead thus earnestly, almost agonizingly—"Pardon, I beseech Thee, the iniquity of this people according unto the greatness of Thy mercy, and as Thou hast forgiven this people from Egypt even until now."

In vain may we search profane history for such an abandonment of personal and family aggrandizement.

Truly, Moses was an unselfish man.

In committing the records of his life transactions to writing, he omits nothing; but faithfully chronicles, in all plainness, the events as they occur; however dishonourable to himself, his family, or nation, he gives them all to posterity. His brother's idolatry, his sister's leprosy, the profaneness of his nephews, the murmurings and backslidings of the people, the curse pronounced and resting on his tribe, his own rash speech and behaviour, and the sentence of God pronounced on him in consequence—all are faithfully told.

Graves remarks—"The most decisive character of truth in any history is its *impartiality*, and here the author of the Pentateuch is distinguished perhaps above every historian in the world. . . . He speaks of the Jewish nation, not only impartially, but severely; he does not conceal the weakness and obscurity of their origin; that a Syrian ready to perish was their father (*Deut.* xxvi., 5); nor their long and degrading slavery in Egypt; their frequent murmurings and criminal distrust of God, notwithstanding His many interpositions in their favour; their criminal apostacy, rebellion, and resolution to return to

Egypt, first when they erected the golden calf at Mount Sinai, and next on the return of the spies from the land of Canaan; he repeatedly reproaches the people with their crimes, and loads them with the epithets of stiffnecked, rebellious, and idolatrous; he declares to them his conviction that, in their prosperity, they would again relapse into their rebellions and idolatries, and imitate the foul vices of those nations whom God had driven out from before them for these very crimes. . . . So again, in speaking of his own relatives and of himself. Of his own family, we are told nothing but that his father-in-law, Jethro, was a wise man, who suggested to Moses some regulations of utility; that his wife was an Ethiopian woman, and, as such, the object of contempt and opposition even to his own brother and sister (*Num.* xii., 1). How different is all this from the embellishments of fiction or the exaggerations of vanity! How strongly does it carry with it the appearance of humility and truth!"

Moses was a scrupulously impartial and honest historian.

Lastly, Moses was a thoroughly competent writer, as well as leader. "No one," says the Rev. Daniel Moore, "in reading the Mosaic books, would say of the author of them that he was an *ignorant* man, deficient in knowledge of his subject; or a *weak* man, likely to be imposed upon by false representations; or an *enthusiastic* man, easily carried away by the force of a heated imagination. On the contrary, he is everywhere calm, judicious, self-possessed, thoughtful. Especially, in trying emergencies, do we see the singular force of his character. It is then he evinces that steady fixedness of purpose, that strength of moral determination, which no tumults of the people could shake, and no blandishments of a court had ever been able to turn aside." And on a par with these moral qualities were his high mental endowments. Of these, his writings give proof. His laws are quoted by all nations, as a monument of matchless wisdom. His ethics rest on a basis of the most pure and sublime morality. Philosophers stand amazed at the far-seeing exactitude of his scientific statements; and even rhetoricians are willing to sit at his feet, to learn lessons of the lofty and the bold in style. As against all suspicion of fanaticism or ignorance, or mental or moral weakness, therefore we may say fearlessly that no man, more than Moses, was ever fitted to undertake a Divine legation. He was not only learned in all the wisdom of the Egyptians, but he excelled in every nation's best. He was the man for a great people to make a hero of, and to worship. And the Jews did worship him—would have worshipped him even in death, if it had been possible; "but no man knoweth of his sepulchre unto this day."

CHAPTER IX.

NEXT in import, in our inquiries, are naturally the sources from which, and means by which, Moses was enabled to supply the information afforded to us in his writings; and, lastly, the value to be placed on the assertion that both the writer and the writings were inspired.

The commencing chapters of Genesis, treating of events anterior to, and beyond all human knowledge or the sphere of man's experience, require consideration under a different light than the succeeding chapters which commence with, and continue, the history of the human race. "In the former, the most sublime and wonderful events are described with childlike simplicity; while, in the latter, on the contrary, the most simple and common occurrences are interwoven with the sublimest thoughts and reflections, rendering the small family circle a whole world in history, and the principal actors in it prototypes for a whole nation, and for all time. It is true, the narrations are fraught with wonders; but primeval wonders, the marvellous deeds of God, are the very subject of a Genesis. They are all penetrated and connected by one common leading idea, and are all related to the counsel of God for the salvation of man. This principle sheds its lustrous beams through the whole of Genesis; therefore, the wonders, therein related, are as little to be ascribed to the invention and imagination of man, as the whole plan of God for human salvation. The cosmogony in Genesis stands unequalled among all others known in the ancient world, and cannot be ranked with any system of mythology or philosophy. All others may have been derived from the Biblical, and are depravations and misrepresentations of Biblical truth; but the contents of Genesis could not have been derived from them."

The date of the writings is fixed, as during the journey of the Israelites in the wilderness, and after the construction of the Ark wherein they were, along with the stone tables containing the Decalogue, to be deposited. *Exod.* xvii., 14, "And the Lord said unto Moses, write this for a memorial in a book." The discomfiture of the Amelekites is said to have been the first thing written, and as this took place before the people left Rephidim, from whence they departed into the wilderness of Sinai, the writing was drawn up before the events on the mountain took place. The law written by the finger of God is referred to as if the art of writing was one generally known and understood, for we are afterwards told that the writings were to be preserved, in order that they might be read unto the Israelites. *Deut.* xxxi., 9, 24—26, "And Moses wrote the law, and delivered it unto the priests the sons of Levi, which bare the ark of the covenant of the Lord, and unto all the elders of Israel. And it came to pass, when Moses had made an end of writing the words of this law in a book, until they were finished, that Moses commanded the Levites, which bare the ark of the covenant of the Lord, saying, take this book of the law, and put it in the side of the ark of the covenant of the Lord your God, that it may be there for a witness against thee."

Seeing that Scripture is silent on the subject—encouraging the presumption that writing had been in use long before—and seeing that the art of conveying facts and ideas, from one person to another, was especially required and destined to preserve unimpaired, to all time, the knowledge of God, is it too much to believe that God, by revelation, communicated the power of writing with the gift of language? It does not appear that any one ever invented an alphabet who had never seen one; and all the heathen nations who possessed the art professed to have received it from a God. But, even granting that the art was a human invention, it may be conceded that, previous to the discovery and employment of writing, occurrences were transmitted orally from generation to generation. In this mode, the recollections and events of previous ages were transmitted downwards from Adam to Noah; and, considering the few hands they would have to pass through, and the fact that these were children of God, the narrative of primeval time would undergo this transmission uninjured. The first man lived to the time of Lamech, the father of Noah, and his grandchild, Shem, to the time of Abraham. Moses lived, according to Hebrew chronology, 800 years after the flood, or, if we adopt the longest computation of Josephus and the Septuagint, 1500 years—a less period than separates our days from the Roman Empire. But, although so far removed in time—including sixteen generations—there were only four steps through which the description of that event might come down to him. Shem was an eye witness of the flood, and cotemporary with Abraham; Jacob was cotemporary with Abraham; Kohath, the son of Levi, with Jacob; and Amram, father of Moses, with Kohath. Even, in this legendary transmission of history, granting that any mythical embellishment could have been added to the facts—which is barely probable—the person, or persons, who wrote them down under the immediate influence of the spirit of God, were so assisted and corrected in their merely human researches that misstatements became impossible.

There can be no question that, in the lives of families or nations, important events in which their ancestors have been engaged become an integral portion of their existence, and every care is taken that a knowledge of them shall be preserved. If this be true under ordinary circumstances, how carefully would the knowledge of such important events as the creation, the fall, the promised redemption, the flood and its cause, be preserved among those who, in these times, age after age, in humble fear and hope, "called upon the name of the Lord."

The exact period of the invention of writing cannot now be determined; and the supposition, that it was unknown to the Jews until the times of the Judges, has long been abandoned. At the time of the Exodus, it is quite clear the Egyptians had attained to a very high eminence in arts and science, commerce, civilization, and grandeur. The monuments, bearing inscriptions, which have been disentombed—as well as writings upon papyrus, both in hieroglyphic and hieratic characters, as early as B.C. 2450, which have come down to us—would induce us to believe that they must have obtained their written characters from the original families of mankind. It is hardly to be supposed that all scientific knowledge perished at the flood. Nay, it is much more likely that the family of Noah spread the knowledge of letters, with the knowledge of religion, over those lands which they colonised, however much science, like religion, may afterwards have been hidden under loads of perversion and superstition. Before the migration of Abraham, writing was in use among the Chaldeans, from whom the Jews, before going down into Egypt, might probably receive the art. In Genesis, 5th chapter, the expression "book of the generations" is used. If oral tradition alone had preserved the generations of Adam, the term book could scarcely have been applicable; but, writing being in use, the term would be the one necessarily employed. The book of Job is considered the most ancient written work extant; and the author uses—as common and well-known terms—book, writing, nay, an iron pen, which could hardly have been employed had no such thing existed.

Moses was, however, "learned in all the wisdom of the Egyptians," and being so, writing, as a matter of course, formed part of his learning. Whether he was the first, or not, to commit the traditional history of the human race to writing, or whether he availed himself of written records, the labours of preceding writers in the same field, is of little moment and cannot now be discovered. It is more than likely he availed himself both of written records and oral accounts. We depend not for their authenticity on mere human labour, but on that Divine direction which guided him who wrote. That our dependance is not baseless, we have not only the express statements of the Scriptures themselves, as given by Moses, the Prophets, the Apostles, and our Lord, but by the fulfilment of their indications and prophecies, and by the fruit in Christianity, to which the history of the world bears witness.

It is not by the Jews alone that it is asserted that a revelation from God was vouchsafed to them, and that their religion, as a revealed religion, existed for 1500 years in an established form, until superseded by Christianity. Chaldeans, Phoenicians, Persians, Greeks, and Romans testify the same. The apostle and disciple of Christ, at the establishment of Christianity, declares the same truth, "God, who at sundry times, and in divers manner, spake in times past unto the fathers by the prophets, hath in these last days spoken unto us by His Son." And now, in these our days, voices from the tombs are joining the voices from the rocks to proclaim the Divine origin of the Scriptures. In contrasting different portions of Scripture with traditionary legends and poetry, however old, it will be at once discovered that sobriety and truth lie on the side of the Word of God, while the others are coloured by human imagination. These collateral evidences, however much they support Scripture, carry no conviction to the mind; while the language of the sacred writings wins its way by its very simplicity, and gains a mastery over our reason by the mighty truths which it unfolds.

It is difficult to give a concise, and yet comprehensive, reply to the question, What is Inspiration? Professor Lee says "Inspiration is the actuating energy of the Holy Spirit, in whatever degree or manner it may have been exercised, guided by which, the human agents chosen by

God have officially proclaimed His will by word of mouth, or have committed to writing the several portions of the Bible." Dr Gaussen defines it to be "The mysterious power which the Divine Spirit put forth on the authors of the Scriptures, both in the Old and New Testament, in order to their composing these as they have been received by the church of God at their hands." And Dr Knapp expresses himself thus—"It may be best defined, according to the Scriptures themselves, as an extraordinary Divine agency upon teachers while giving instruction, whether oral or written, by which they were taught what and how they should write or speak." The extent of the influence of the Holy Spirit, and the manner in which it was exercised, on the minds of the writers, have been fertile sources of hypotheses with writers and teachers of past and present times.

While "all Scripture is given by inspiration of God," it is equally true that inspiration was given "at sundry times and in divers manners"—sometimes by audible words, by inward suggestions, by outward signs, by the Urim and Thummim, by dreams, and by visions. The manner detracted nothing from the certainty. In whatsoever mode inspiration was given, His will was made clearly manifest to His servants. The degree of inspiration, no doubt, was also different, and proportioned to the end required. At times, the writings described things the writers could not know by natural means, such as the operations of the Almighty in a past infinity of time, new precepts or doctrines, or the events of far-distant times in the future. At other times, the writings referred to occurrences handed down and known to the writers traditionally, or related to them by contemporaries. At other times, they consisted of summaries of historical records, containing what His infinite wisdom saw to be adapted to His people in all ages, or the records of experience by special teaching, or parables, or allegories in prose or verse suited to make salutary impressions on the human mind, or a record of supernatural visions. In each and all of these varied writings, the penmen assuredly needed Divine teaching, as no wisdom, save of God, could determine what should be written, or in what language, in order to attain the great ends of revelation, and be of permanent use to and in the church.

Without entering into the minute speculations as to whether the inspiration included the dictation of the words employed, or merely influenced the thoughts, it is enough that it be understood that the writer is preserved, by the Holy Spirit, from using any language which could convey a mistaken sense of the Divine mind as to facts, precepts, or doctrine. It is true, there is an individuality impressed on the work of each writer, arising from difference of character, position in life, and education; but this is only an object for our gratitude, inasmuch as human character is thus infused into the word of God, and this blending of humanity and divinity, of God's majesty and condescension, exercises a mighty power over our minds. This diversity of thoughts and expressions, even on the same subject, not only affords innumerable beauties, but is suited, and more easily applied, to themselves for instruction, reproof, and correction by different minds—for example, there are four narratives of the life and death of Jesus, from four historians. Had they been all alike, three of them would have been useless; and again, had they been so, suspicion might have been engendered. They do not all affect individual readers alike, and their seeming contradictions are easily and satisfactorily reconcileable.

The evidences of inspiration are many. We shall confine ourselves to a few.

The writers themselves declare that they speak and write the Word of God, and in this declaration are surely as worthy of belief as in other matters. In introducing their subject, they confirm its truth by "Thus saith the Lord," or "The Lord spake unto me, saying," "And the Lord spake unto Moses"—in one way or another expressing their Divine commission.

We have already noticed the evidence borne by the Apostles, and the great unerring teacher, Jesus Christ, as to the sacred writings being none other than the Word of God. No work of man could be entitled to the respect which Christ showed for the Scriptures; and, in regard to the commencement of Genesis, He specially marks the institution of marriage in Eden, thus quoting from the earliest book as freely as from those later written.

The various miracles wrought by the writers proclaim their Divine authority, and establish their inspiration. In the case of Moses, nations were witnesses to their truth, and the institutions founded on them are evidences to later times. "Here," says Van Mildert, "as in the Christian religion, is a series of *facts* easy to be proved, or disproved, at the time when they were said to be wrought, and also several *ordinances* of a peculiar and appropriate description, designed to keep those facts in remembrance. If, then, it be asked 'Might not an imposter deceive a whole people by pretending to do such things as Moses did?' or 'Might not some other imposter afterwards fabricate an account of these pretended transactions?' the answer is, that the nature of *facts* clearly refutes the former supposition, and the nature of the *institutions* founded upon them as clearly refutes the latter. For, as no man could make a whole people believe that he had laid the country in which they lived under desolation by unheard-of plagues of a preternatural kind, and that he had conducted them for forty years together through a scene of perils, trials, and deliverances unparalleled in the history of mankind, without having actually performed such things; so no man, in after times, could induce that people to believe that such and such ordinances and memorials of those events had been constantly and religiously observed by that very people ever since the events took place, *if neither such events had ever happened, nor such ordinances and memorials were then really existing.* And it is utterly incredible that, at any after period, an attempt to impose such things upon the nation, if unfounded in fact, could possibly have succeeded."

Maimonides, recognising the division of the ancient Scriptures, and ascribing to Moses the pre-eminence above all other inspired writers, thus enumerates the particulars wherein this pre-eminence consisted, viz.:—"(1.) All the other prophets saw the prophecy in a dream or a vision; but our Rabbi, Moses, saw it when he was awake. (2.) To all the other prophets it was revealed through the medium of an angel, and therefore they saw in an allegory or enigma; but to Moses it is said, 'With him I will speak mouth to mouth' (*Num.* xii., 8) and 'face to face' (*Exod.* xxxiii., 11). (3.)

All the other prophets were terrified; but with Moses it was not so; and this is what the Scripture says—'As a man speaketh unto his friend' (*Exod.* xxxiii., 11). (4.) All the other prophets could not prophesy at any time that they wished; but with Moses it was not so, but at any time when he wished for it, the Holy Spirit came upon him, so that it was not necessary for him to prepare his mind, for he was always ready for it, like the ministering angels."

His prophecies, too, and their literal fulfilment afford additional and indisputable evidence of his Divine inspiration, and of his high communion with the Lord, "As a man speaketh unto his friend," "Mouth to mouth," till his very countenance was radiant with heavenly glory. His writings abound with direct prophecies of the Messiah, and are repeatedly referred to by the Apostles. He describes in glowing language, without having seen or lived in it, the beauties and qualities of the promised land, the fate of the inhabitants and the future destinies of their dispossessors; he anticipates their ingratitude, idolatry, defeat, disgrace, and slavery; the invasions of powerful nations; the extremity of distress, when parents should eat their own children for food; the change in the very soil of Palestine from verdure and fertility to barrenness; nay, the condition of the Jewish people at this hour. *Deut.* xxviii., 64, 65, "And the Lord shall scatter thee among all people from the one end of the earth even unto the other, . . . among these nations shall thou find no ease, neither shall the sole of thy foot have rest."

CHAPTER X.

IN the preceding chapter, we have considered the various methods by which holy men of old were enabled to write those works which have come down to our times. That portion of Genesis, which narrates the deeds of the Almighty in the creation of the world, is of an entirely different character from the portions treating of the earlier families of the human race, and the most remarkable events of their times. The latter may, to some extent, have been derived from tradition; but the former must have been supplied to Moses, or to some preceding author, through a channel other than human, inasmuch as the events and developments lie beyond human knowledge and experience.

It has been urged that, like as the intuitive knowledge given to man, which he possessed in his state of innocence, and by which he was enabled to judge of the habits, and so name the animals brought before him, so the same knowledge, aided by reflection, enabled him to understand and describe his own creation, and that of the world. Although it be true that man thus named all the animals, it does not follow that a knowledge of all their habits was the result of intuition alone; or, even if it had been,—as he named all the beasts of the field, the serpent included—his knowledge must, to some extent, have been imperfect, otherwise he would not have listened to its subtle and deluding arguments.

Again, man did not know by intuitive knowledge the origin and nature of all things presented to him. He knew not, until it was revealed to him, that to eat of the fruit of the tree in the midst of the garden would subject him to death; nor could he have known by intuition, without Divine revelation, that God blessed and sanctified the seventh day. It follows, therefore, that the account of creation must have been revealed in the same manner in which the prophets in later days learned the events of periods far distant in futurity. The Holy Spirit knows neither past nor future. To Him, everything is eternally present. Thus, there can be no difference between the revelation of the past and the future. In Genesis, there is a truthfulness and a vividness of pictorial description which induces the feeling that the writer must have seen what he describes, and the manner in which the momentous occurrences took place. Each scene of the great historical drama, as it was unrolled before his prophetic vision, is thus given in language of the most sublime character:—

"It scarcely seems necessary to justify the use of the term *vision*, in describing the revelation given to Moses at the time here spoken of, to enable him to record the acts of creation. Unless we adopt the extreme opinion of supposing a literal and verbal inspiration, how else, than by *vision*, can he have been made to conceive of things buried in so remote a past? It seems but the natural language, in contemplating such a revelation, to say with Coleridge, 'Let us carry us back in spirit to the mysterious week—the teeming work-days of the creation—as they rose in *vision* before the eyes of the inspired historian.' Indeed, the best writers on inspiration will tell us that, oftentimes, in no other way could the human faculties have been employed to communicate Divine revelations at all, except by 'visions,' and imaginative pictures presented to the mind, unless we are to suppose those faculties altogether superseded and suspended, and no use of them made in receiving or imparting the supernatural information conveyed. Thus, the 'seer' was the very title of the prophet (1 *Sam.* ix., 9; 1 *Chron.* xxix., 29). St. Paul says, 'I will come to *visions* and revelations;' and St. John is bid 'to write what he had seen;' 'he bare record of the word of God, . . . and of all things that he *saw*' (2 *Cor.* xii., 1; *Rev.* i., 2, 19). The following is the remark of a judicious writer:—'When the ideas to be conveyed related to things which surpass the bounds of human experience, it is plain that ordinary language must fail to convey to others what was thus revealed. It was necessary, therefore, that such symbols, or visible representations, should be moulded, as it were, for the occasion, which would best conform to those ideas. . . . And in the case of such visions, as in cases of natural poetic effusions, the imaginative faculty of the prophets naturally comes into play—the Divine Spirit guiding the imagination, while clothing the ideas with appropriate symbols.'"

Hugh Miller, in his "Testimony of the Rocks," entertains and conveys the same views, in language of no ordinary beauty. Several authors, and particularly Dr Kalisch, criticise this portion of Mr Miller's writings in no measured terms, attempting, without effect, to turn them rather into ridicule than dispose of their conclusions by sober argument, ascribing many things to Miller which he nowhere asserts. Perhaps it is somewhat to be regretted that Mr Miller, instead of urging the hypothesis of Moses having been instructed by vision, attempted to describe the manner in which the vision probably was given, thus yielding reason to the flights of fancy.

Of men who have, like Moses, been so divinely favoured, we have in Scripture several examples. To these, the visions have been given so vividly, and so minutely, that their descriptions convey to the reader the most distinct mental realization of the events and actors; but not only so, the seers were themselves not only beholders, but actors, in the wondrous scenes; they heard, spake, fell down, rose up, walked, and were sensible to the touch of their supernatural companions. Need we recall the visions and personal experiences during the visions of Ezekiel, Daniel, Paul, Peter, and John in the island of Patmos? Compared with the Revelation made to St John, does the vision afforded to Moses appear more wonderful?

In describing what was presented to the eye of Moses, "the Man of God," there is no necessity for insisting that the nature of the revelation included the literal words in which it was his province to record the wondrous events. The facts, so far as preternaturally conveyed, he was impelled to narrate, but only in the manner in which they were optically evident, and in language in common use, suited to common understandings, and similar to what other and uninspired men would have employed, regarding any scene or event in natural scenery or common life, which they had beheld, or in which they had been actors. In our own day, a modern poet, perfectly cognizant of the motions of the heavenly bodies, thus beautifully expresses himself in accordance with common language:—

"There is the sun's pavilion, whence arising,
Like a proud bridegroom, in his splendour drest,
And with glad light the dewy earth surprising,
A giant glad, he speeds him to the west.
His going forth is from the orient heaven,
And round he hies again to reach the goal,—
The lowest earth feels his glad heat like leaven,—
Working mysterious ends from pole to pole."

Instead of using the language of philosophy, which we have before shown would have been a mere unintelligible jargon to the Israelites, and perhaps as little understood even by the learned of the present day, considering the progressive character of most sciences, and that the information he gave must have also been drawn from an inspired source, he adopts the common phraseology of life, and designates the heavenly bodies, for instance, according to their apparent and not real motions and magnitudes.

The same style was employed by succeeding writers—*e.g.*, *Ps.* xix., 5, "The sun is as a bridegroom coming out of his chamber, and rejoiceth as a strong man to run a race;" *Ps.* civ., 19, "The sun *knoweth* his going down;" *Eccles.* i., 5, "The sun also ariseth, and the sun goeth down." The object being, as has been before remarked, not instruction in science, but to lead the mind of man upwards, from the visible and material, to what is invisible and spiritual.

If Moses saw that which he has described in vision, he would naturally describe all as it appeared to him, and only what he saw; and thus apparent omissions, which we shall hereafter have to consider, are easily understood.

It is too much the practice for many, whose curiosity cannot be satisfied, or who cannot find a ready solution for any difficulty that may occur, to impute contradictions, and to assert that great blunders have been made, forgetting that more cogent reasons existed for the matter and manner of the revelation as it stands, than the gratification of mere human curiosity, or affording amusement or excitement to listless minds.

On this point, Dr Knapp says, "If we would form a clear and distinct notion of this whole description of creation, we must conceive of six separate pictures in which this great work is represented in each successive stage of its progress towards completion. And as the performance of the painter, though it must have natural truth for its foundation, must not be considered, or judged of, as a delineation of mathematical or scientific accuracy, so neither must this pictorial representation of the creation be regarded as literally and exactly true." He then adds regarding the hypothesis respecting the early state of the matter of the globe—"Any of these hypotheses of the naturalist may be adopted or rejected, the Mosaic geogony notwithstanding.

"The anxious student in a different spirit, not captious, not proud of his own knowledge, who approaches the portico of the mighty temple in which are enshrined the records of the most sublime events and works, feels that each enquiry suggests new views, and elevates the soul's faculties to yet higher contemplations; and that, while there is nothing to startle the timid, and nothing to damp the ardour of the devout, the point of full knowledge is receding before his anxious gaze.

"The strain of music from the lyre of science flows on, rich and sweet, full and harmonious, but never reaches a close; no cadence is heard with which the intellectual ear can feel satisfied. . . . The idea of some closing strain seems to lurk among our own thoughts, waiting to be articulated in the notes which flow from the knowledge of external nature. The idea of something ultimate in our philosophical researches, something in which the mind can acquiesce, and which will leave us no further questions to ask of *whence*, and *why*, and by what *power*, seems as if it belonged to us—as if we could not have it withheld from us by any imperfection or incompleteness in the actual performance of science. What is the meaning of this conviction? What is the reality thus anticipated? Whither does the development of this idea conduct us?

"This conviction is one of the highest to which we can attain, and seems to belong to that part of us which reaches out into the unknown future, whither it conducts us, and the reality of which it dimly reflects, as light from behind the distant hill-tops, into the valley of life. Of these deeply interesting matters, much is already known from the phenomena which we have described; but the most interesting, and, perhaps, the most important questions are yet unanswered—many of which will not, cannot be known to finite beings. Beyond the horizon that binds our vision, and there only, will such questions be satisfactorily answered. Thither, with anxious eyes and trembling steps, with deeper interest and increasing humility and reverence, let us advance. There, surely, if not before, these mysterious questions will be explained, and a more perfect revelation of the glories, which are seen now through an obscured and imperfect vision only, will be made when the material veil is removed from the grand still mirror of eternity."

Intimately connected with the question of the manner and the matter from which Moses derived the information he has given to us regarding the creation, is the consideration of the time in which the mighty operations described were performed. Long prior to the enquiry as to the meaning of the term day, which the discoveries of geology have more particularly pressed on our attention from the earliest times, writers on the Scriptures have doubted whether the days of Moses are to be understood in the literal sense as days of twenty-four hours, like as one of our natural and ordinary days. Various explanations have been proposed, each ably argued by men eminent in theology and philosophy. Leaving out modifications of the hypotheses, it may be sufficient to remark that the term day is held to mean—1. a natural day; 2. indefinitely long periods, corresponding to those in which the great geological strata were deposited, and the changes occurred through which the world was fitted for the highest races of beings; 3. days immensely exceeding natural days in length; 4. periods of time during which the creative vision passed before the eyes of Moses.

1. It is undoubtedly true that the Omnipotent Creator could, by the word of His power, have as easily created and arranged instantaneously the world as it now is, as in six days; but the whole plan of creation, as exhibited to us in the progression of life, from the lowliest forms of organization to the highest orders, presents an elaborate work by a determinate plan, and by slow and measured steps through a protracted series of ages. It would almost

be too absurd to insist that the fossil remains of plants and animals, which are found imbedded in the different strata, and which must, when alive, individually have required long periods to arrive at maturity ere they died and were thus entombed, were all created, lived, died, and were buried within twenty-four hours in order to puzzle geologists, or supply an interesting subject for discussion. By some advocates of this explanation, it has been argued (1.) that all the fossiliferous strata have been formed and deposited by the Noachian deluge; (2.) that they have been deposited in the interval between the creation of the human species and that deluge, or that some of them, as the primary and secondary, were formed during this period, and the remainder, as the tertiary and diluvial deposits, by Noah's flood. Both of these suppositions appear inconsistent with the immense thickness and numerous subdivisions of the strata, and with the difference of petrifaction being generally greater in the older formations, and less in the more recent. They also seem irreconcileable with the fact of superincumbent strata of different mineral composition, and enclosing differing, and often characteristic classes of organic remains, lying upon each other without intermixture or confusion, which could hardly be the case if they were deposited by a flood, or though in a less eminent degree, within a short period. A further objection arises from the difference of climate appropriate to the different classes of organic remains—many of those of the lower strata, even in northern regions, exhibiting a character fitted to a tropical climate, whilst those of the upper formations, in succession, rather show a climate cooling down to a temperate one, such as exists at present;

besides which, many of their genera, and almost all their species, are extinct; and what is also a very strong objection, no human remains or works of art have, so far as geological research has hitherto gone, been found in any of the strata, excepting in those which, from physical evidence, are concluded to be of the most recent epoch. As all these facts are strongly against this hypothesis, it will be unnecessary to allude to them any further.

Even by those who have construed the term *day* as a natural day, it has been admitted that there is no sound critical or theological objection to the interpretation of the word as meaning a long period. The expression is often used in Scripture to express a period of indefinite length: thus, we have such expressions as the life of man called "his day," and others, "the day of God's wrath," "the day of the Lord," and in Zechariah, a day described like as those in Genesis, "one day which shall be known to the Lord, not day, nor night; but it shall come to pass, that at evening time it shall be light." Daniel describes as the vision of the evening and the morning, a period formerly specified as "two thousand and three hundred days;" and in *Psalms* xc., 4, "For a thousand years in thy sight are but as yesterday when it is past." Other and numerous instances in the Old Testament might be quoted. In the New Testament the same form of expression occurs. *Luke* xvii., 24, "So shall also the Son of man be in his day." *John* viii., 56, "Your father Abraham rejoiced to see my day: and he saw it, and was glad." 2 *Peter* iii., 8, "One day is with the Lord as a thousand years, and a thousand years as one day." Indeed, a further vindication of the term as applied in Scripture to time of vast duration would merely be wearisome.

There are those who insist on the natural day explanation, by using the argument, in regard to strata and fossils, that the Divine Being might as easily have made matter to assume the form of a shell, a fish, a lizard, or a water-worn pebble—such as we find in these rocks—or of any other shape or structure. On this, Professor Silliman remarks—"We will not enquire whether Almighty Power inserted plants and animals in mineral masses, and was thus exerted in working a long series of useless miracles without design or end, and therefore incredible. The man who can believe, for example, that the Iguanodon, with his gigantic form 70 feet in length, 10 feet in height, and 15 in girth, was created in the midst of consolidated sandstone, and placed down 1000 or 1200 feet from the surface of the earth in a rock composed of ruins and fragments, and containing vegetables, shells, fish, and rolled pebbles, such a man can believe anything with or without evidence. If there be any such persons, we must leave them to their own reflections, since they cannot be influenced by reason and sound argument; with them we can sustain no discussion, for there is no common ground on which we can meet."

Lastly, a day of this earth's revolution is not a day with reference to the revolutions of the other innumerable created worlds. While the sun requires for its revolution on its axis twenty-five days, the days of Jupiter and Saturn are shorter than ours, although these bodies are much larger—Jupiter being 1470 times, and Saturn 887 times, greater in size. Without, therefore, extending the consideration of the question to other planets than those of our own system, within it each planet differs from the other in the length of the day; and our day of twenty-four hours would be no measurement or rule of time to that Almighty Being who is the Creator of them all. Those who believe that the days immensely exceeded our days in length imagine that the earth, broken off from the sun, was either at rest, or, at least, that its motion on its axis was very slow. The most laborious enquiries of astronomers, and others, on this point, have never been able to discover that any variation whatever has occurred in the daily revolution of the earth. The days are considered by many of the eminent theologians and geologists of the present time as natural days, during which the transactions of vast epochs of time passed, in vision, before the eyes of Moses. The days, in fact, says Miller, "are removed altogether from the province of chronology to the province of prophetic vision; they are represented simply as parts of the exhibited scenery, or, rather, as forming the measure of the apparent time during which the scenery was exhibited." Moreover, "in the character of symbolic days, they were as truly representative of the lapse of foregone periods of creation, as the scenery itself was representative of the creative work accomplished in these periods." And again—"We cannot but see that there is strong ground for the suggestion, that the whole scene was communicated to the sacred historian in a succession of visions, each separate one occupying an evening and a morning—that is to say, an intermediate night, the season of visions or dreams—and the transactions of it appearing to Moses to be comprised in the compass of a natural day—which is defined to be the period of light—though the realities, of which it was the vision, occupied many natural days and nights. It is well known that the transactions of years are often compressed, in a dream, into the space of a few minutes, or even a less space of time; on the same principle, the operations of the Divine Author of the creation, which may have occupied a long series of years, may have been presented to Moses as the events of a single day."

To those who would carp at the demands of geology to consider the days specified as eras of indefinite length, it may be suggested that days, and time generally, are long or short, according to the standard employed. The man of eighty is venerable compared with the infant in arms, but he becomes a child compared with Methuselah; and all time and days sink into an instant compared with His duration, at whose will, time, and days, and matter originated, and that eternal day of rest for which we are designed.

CHAPTER XI.

"The Lord is a great God,
And a great King above all Gods.
In His hand are the deep places of the earth:
And the strength of the hills is His also.
The sea is His, and He made it:
And His hands formed the dry land."

We have now examined the Testimony of the Stony Record, and proved the authenticity of the Scripture Record, by inquiries into its validity as the true word of God handed down to us under His protection—its inspiration, as to the contents and authors—and the manner in which the account of the creation, as contained in the opening chapters of Genesis, has been given to us through their penman, Moses.

Let us now, in all reverence, and a spirit desirous to be taught, open the sacred volume, and compare what His word narrates with what His works declare.

First, however, it may be noted that the division of our Bible into chapters and verses has been executed in an arbitrary manner, and without regard to the subject, or connection, and consecutive order of ideas and events, thus often marring the sense and confusing the reader. Of this we have a glaring instance, in the account of the creation. The first chapter, instead of terminating as it does, should have contained the first three verses of the second chapter. Had it done so, the narrative would have been complete, natural, and have exhausted the subject, to which the first verse is so magnificent an introduction.

In the following enquiry, this division we propose to adopt :—

1 In the beginning God created the heaven and the earth.

2 And the earth was without form, and void; and darkness *was* upon the face of the deep. And the Spirit of God moved upon the face of the waters.

3 And God said, Let there be light: and there was light.

4 And God saw the light, that *it was* good: and God divided the light from the darkness.

5 And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

6 ¶ And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.

7 And God made the firmament, and divided the waters which *were* under the firmament from the waters which *were* above the firmament: and it was so.

8 And God called the firmament Heaven. And the evening and the morning were the second day.

9 ¶ And God said, Let the waters under the heaven be gathered together unto one place, and let the dry *land* appear: and it was so.

10 And God called the dry *land* Earth; and the gathering together of the waters called he Seas: and God saw that *it was* good.

11 And God said, Let the earth bring forth grass, the herb yielding seed, *and* the fruit tree yielding fruit after his kind, whose seed *is* in itself, upon the earth: and it was so.

12 And the earth brought forth grass, *and* herb yielding seed after his kind, and the tree yielding fruit, whose seed *was* in itself, after his kind: and God saw that *it was* good.

13 And the evening and the morning were the third day.

14 ¶ And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years:

15 And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so.

16 And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: *he made* the stars also.

17 And God set them in the firmament of the heaven to give light upon the earth,

18 And to rule over the day and over the night, and to divide the light from the darkness: and God saw that *it was* good.

19 And the evening and the morning were the fourth day.

20 ¶ And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl *that* may fly above the earth in the open firmament of heaven.

21 And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that *it was* good.

22 And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth.

23 And the evening and the morning were the fifth day.

24 ¶ And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.

25 And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that *it was* good.

26 ¶ And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

27 So God created man in his *own* image, in the image of God created he him: male and female created he them.

28 And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have

dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

29 ¶ And God said, Behold, I have given you every herb bearing seed, which *is* upon the face of all the earth, and every tree, in the which *is* the fruit of a tree yielding seed; to you it shall be for meat.

30 And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein *there is* life, *I have given* every green herb for meat: and it was so.

31 And God saw every thing that he had made, and, behold, *it was* very good. And the evening and the morning were the sixth day.

32 ¶ Thus the heavens and the earth were finished, and all the host of them.

33 And on the seventh day God ended his work which he had made; and he rested on the seventh day from all his work which he had made.

34 And God blessed the seventh day, and sanctified it: because that in it he had rested from all his work which God created and made.

The first chapter in the book of Genesis is truly a wonderful composition—an epitome of the changes which have passed in the immensity of time intervening between "the beginning" and that Sabbatic period when "He rested from all His work which He had created and made." The opening verse, like the sound of a mighty trumpet, stirs the soul, in its inmost recesses, to contemplate, in admiring awe, the doctrines it promulgates. Its very language is impressed with the stamp of its Divine original, and its reception puts at once to flight the errors of Paganism and infidelity, affords certainty and joy to the believer, and, had it been known to them, would have solved the anxious inquiries of the ancient philosophers. From it a child of our day knows, and has learned, more than is contained in the Chaldean account of the creation by Berosus, the Phœnician by Sanchoniathon, the Egyptian by Diodorus Siculus, and in the Grecian by Hesiod; more than all the philosophers without it ever knew; more than human thoughts ever would have compassed, but for a revelation from heaven. It embodies so much, that every word is of paramount importance.

"In the beginning God created the heaven and the earth."

"The beginning" declares a truth so sublime, so solemn, as to fill the mind with awe, that there was a point before time was, when nothing in the heavens or on the earth existed, things visible nor invisible, when the great I AM alone existed through all past eternity.

When the first act of creation was enacted "in the beginning," the first moment of time was ushered into being. It is impossible to definitely conceive the beginning of time, but it is this very impossibility which the more strongly contrasts with the eternity of the Great Creator.

The best expositors of Scripture are agreed that this verse has no necessary connection with what follows, but is an introduction to the subject, and as such, is an independent statement as to creation at some period indefinitely remote. It embodies a protest against the fundamental errors of heathenism entertained by the nations of antiquity, who worshipped nature and regarded the world as eternal, and announces the absolute origination of time and the material universe by the Almighty Creator. But the act of creation is not chronologically fixed. No language can be more indefinite than the words used, indeed Moses is to be understood as saying that the beginning is concealed from us in the mystery of eternal ages. "We do not know," says Sharon Turner, "and we have no means of knowing, at what point of the ever-flowing eternity of that which is alone eternal, the Divine subsistence, the creation of our earth or any part of the universe began." Geology requires nothing more than this indefinite enunciation of the Creator's work as to time, which is thus supplied; and Theology demands only the acknowledgement of the wisdom, power, and superintending care of the only one God. The record affords room enough and time enough for every development, and must ever remain to us here as undetermined and obscure as the numbers which, in grains, make up the sum of the sands of ocean.

The triumphs of genius are great as displayed in the light thrown upon the works of past ages, and in piecing together, into perfect forms, the scattered memorials of former races disentombed from the dark places of the earth —of these we may be proud, but here we are checked into awe. Like the boundary placed to the surging waves, beyond this point we pass not.

The language, as in other parts of the Bible, merely designates a time when something began to be, and is paralleled by the expression "In the beginning was the word," that is, when things began to exist, the word already existed from all eternity, "and the word was with God, and the word was God." There is no ascription of a beginning to our blessed Lord, "he was," not was *created*.

The name used for and by the Divine Being is the same as that employed in Genesis, Elohim. In other parts of the Scriptures, the name used is Jehovah, or the eternal I AM. The difference expresses the action of the Almighty as the God of development, providence, and grace; while Elohim is the Creator, the God of commencement. The name Elohim, here applied to and translated God, contains the first intimation of the doctrine of the Trinity in Unity.

In some languages, such as the Greek and Hebrew, there are nouns which, besides the singular and plural, contain another form, the dual. The word here used is in the singular Eloha, the dual Ehohaim, and in the plural Elohim. It is thus to be carefully noted that neither the singular nor dual is used, but the plural, expressive of the mysterious plurality of persons, the Father, the Son, and the Holy Spirit; and that these three are one God is clearly expressed in other passages of the Scriptures.

In the sixth chapter of Deuteronomy, translated "Hear, O Israel: The Lord our God is one Lord," the Hebrew names used are "Hear, O Israel: Jehovah our Elohim is one Jehovah."

The word "created" is next in importance. There is in all languages considerable ambiguity in the use of the words to create, to make, and to form; and hence, although we are taught that the materials of which the world is made were framed out of nothing, it has been contended that the word here used expresses a renovation or remodelling of the universe from matter already in existence, in fact, that it was remodelled from the state of chaos described in the second verse—the ruin of a preceding world, to which, by some catastrophe, it had been reduced. With all humility, it is suggested that, while it is undoubtedly true that matter was created out of nothing by His Almighty word, the parent matter, of which our earth and the planetary system with its central sun formed a portion, originally composed one huge mass, from which, by His command, portions detached to form our earth and other planets, were placed in their several orbits, and endowed with the velocities He saw fit to bestow, as individual constituents of one majesty of creation. That this is no fanciful idea, Brewster says—"Hitherto, we have been surveying worlds at a respectful distance from each other, and having days, and nights, and seasons, and aspects of the same character; but we now arrive at a region in space where some great catastrophe has taken place. At the distance of about 250,000,000 of miles from the sun, corresponding to a period of about 1500 days, astronomers long ago predicted the existence of a large planet occupying the wide space between Mars and Jupiter. In the beginning of the present century, one very small planet was discovered in this locality by M. Piazzi; and after other two had been discovered, one by himself and the other by Mr Harding, Dr Olbers hazarded the opinion that the *three* planets were fragments of a larger one which had burst, and this remarkable theory has been almost placed beyond a doubt by the discovery, in the same place, of *thirty* fragments in all, chiefly by M. Gasparis of Naples, and our eminent countryman, Mr Hind, by whom no fewer than *ten* of these bodies have been discovered."

That the whole of our planetary system originally formed one mass is the opinion of some modern philosophers, and St. Paul says that "we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear" (*Heb.* xi., 3).

While there can be no doubt Moses designed it to be clearly understood that the universe owed its origin, by creation out of nothing, to Elohim, and not to the gods of the heathen, their idols, it is no straining of the passage to suppose a remodelling of the original matter at the commencement of its separate existence by our earth; and this, too, would appear to derive some countenance from the fourth verse of the second chapter—"These are the generations (that is, the foregoing description in chapter i.) of the heavens and the earth when they were created (when the innumerable planets of heaven, including the materials of this earth, were created out of nothing), in the day that the Lord God made the earth and the heavens (remodelled the earth and the planetary system)"—the words created and made being used for different processes, and by Moses evidently so employed.

"The heaven and the earth."—Although the word heaven is sometimes used in a limited sense, it is here used to comprehend the universe, and no more comprehensive phrase could be employed to include each and all of the various meanings of the word, viz.:—1. The air and sky of the birds, and the clouds, the atmosphere,—hence the "dew of heaven," the "four winds of heaven," the birds of heaven. 2. The starry heavens, that illimitable space in which are placed "those worlds that shine so bright," innumerable as the sands on the sea shore, and which

"God alone can number." 3. The heaven of heavens into which Paul, and John, and Enoch, and Elijah were taken up, and to which Solomon refers in his letter to king Huram (2 *Chron.* ii., 5, 6); to which our blessed Lord ascended, where he now is, and where the glory of the Most High is manifested.

It has been supposed that the heaven and the earth had a simultaneous origin. There is no good reason for this; nay, it would rather appear that the specific expression, the heaven and the earth, would convey the idea that they had been formed at different periods, and that, subsequent to the creation of the heavens, the earth had become separated as an independent planet whereon to develope the plans of Jehovah. Be that as it may, the narrative, after enunciating the fact of the creation of the other heavenly bodies, does not further advert to them, but confines itself to details more particularly referring to the earth. It is finely remarked by the learned Dr Hales—"Whether 'the host' of the fixed stars were all 'created and made' at the same time with our system, may reasonably be doubted. For, though all these had *a beginning*, it is nowhere explicitly stated in Scripture that they had *the same beginning;* and the first philosophy, in the days of Job, plainly intimates that 'the morning stars' (by a beautiful figure representing the angels of light) were prior to that creation which they celebrated with hymns of joy. Modern telescopic discoveries have augmented the number of stars that are invisible to the naked eye immensely, leading us to conclude that there are infinite numbers far beyond our ken utterly undiscoverable, so they demonstrate the immense distances even of the largest and nearest, and lead us also to conclude that these can be no other than *suns* shining with native light, and, from analogy, attended with suitable trains of planets furnished, like ours, with inhabitants adapted to each, compared with which our whole system shrinks into insignificance. Is it then to be imagined for a moment that the whole 'spangled heavens, a shining frame,' were called into existence merely 'to give light upon the earth,' which would be absolutely invisible from the nearest? or that the universe, which is found to be infinite or boundless, was not created until so lately as seven or eight thousand years ago?" What a magnificent, overpowering, and sublime thought does this idea call up in the mind! Worlds upon worlds, orbs on orbs, creation upon creation in heaven, each with its possible inhabitants, each fashioned as the earth was, after a season, according to their Creator's will. There is nothing in the language of Moses to prevent our entertaining this belief. He says nothing to the contrary, but goes on to what more concerns us—the earth, perhaps in a semi-liquid state, passing through primeval ages of vacuity, desolate and void.

"And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters." "The detailed history of creation in the first chapter of Genesis," says Dr Chalmers, "begins at the middle of the second verse, and what precedes might be understood as an introductory sentence by which we are most appositely told, both that God created all things at first, and that afterwards, by what interval of time it is not specified, the earth lapsed into a chaos, from the darkness and disorder of which the present system or economy of things was made to arise." Dr J. Pye Smith conceives "that, at a certain epoch, our planet was brought into a state of disorganization, detritus, or ruin—perhaps we have no perfectly appropriate term—from a former condition." The particle *and*, at the commencement of the passage, is an argument used against these views by the English reader; but it has less force in the original Hebrew, where it has the sense of but or afterwards, and several able commentators so apply it in this or at the beginning of the succeeding verses, thus—"Afterwards the earth was desolate," &c., "afterwards the Spirit of God moved upon the face of the waters," expressly teaching the intervention of a period between the first "laying the foundations of the earth" and subsequent acts of creation. Again, the Hebrew words employed, *thohu*, *vabohu*—translated without form, and void—point, in other passages where they are employed (*Isaiah* xxxiv., 2; *Jer.* iv., 23), to a state of desolation succeeding former order. Moses does not attempt to give any information on the former state of the earth, or of the creation of its matter in its original form. Like a truthful witness, he commences his narration at the point where it first was exhibited to his prophetic vision, in its state of desolation and darkness, which he proceeds to describe, after having heralded his communication by the information communicated to him regarding its Creator, and the "heavens the work of His hands."

Not only was our earth desolate and void (the more correct reading instead of without form and void), but darkness was upon the face of the deep. The seer could descry no harmony, no order, light, or life,—the elements were mixed in apparent confusion.

It is not to be supposed that the darkness existed because the sun was not created, for it is clear that this body existed before. Whether it was then the source of light may be, however, doubted, as we shall examine hereafter.

That light existed in other parts of God's creation, cannot be denied, although the question is foreign to our enquiry.

What does Geology say as to the condition of the earth and the cause of the darkness? That there is every reason to believe, the earth, at its commencement as an independent member of the planetary system, existed in a semi-liquid condition, an incandescent mass, the surface of which, cooling by radiation into space, formed a rocky crust, condensing on it, in the process of cooling, the surrounding atmospheric gases, so as to form water, gradually increasing in volume and depth. Separated from the internal fires, by the crust, the seething, boiling waters would produce a dense mist, enveloping the earth, destroying its reflecting power, and rendering it, to the eye of the seer, an opaque mass, desolate and void, with darkness like an universal pall over the waters.

The word translated darkness does not lead us to suppose that light did not exist. The same Hebrew word is used (*Exod.* x., 21, 22) to express the judicial darkness which was brought upon Egypt, while light elsewhere prevailed, "all the children of Israel had light in their dwellings," and again, chap. xiv., 20, where the cloudy pillar was a cloud and darkness to the Egyptians, while it gave "light by night" to the Israelites.

How beautifully Job xxxviii., 4—12, describes the state of the world at this age, and how distinctly his words elucidate the remarks we have made.

Verse 4 Where wast thou when I laid the foundations of the earth? declare, if thou hast understanding.

5 Who hath laid the measures thereof, if thou knowest? or who hath stretched the line upon it?

6 Whereupon are the foundations thereof fastened? or who laid the corner stone thereof;

7 When the morning stars sang together, and all the sons of God shouted for joy?

8 Or *who* shut up the sea with doors, when it brake forth, *as if* it had issued out of the womb?

9 When I made the cloud the garment thereof, and thick darkness a swaddling band for it,

10 And brake up for it my decreed *place*, and set bars and doors,

11 And said, Hitherto shalt thou come, but no further: and here shall thy proud waves be stayed?

12 Hast thou commanded the morning since thy days; *and* caused the dayspring to know his place.

"A dark, untenanted, watery waste," says M'Ausland; "dark, inasmuch as it was covered with vapours, and enveloped in the 'darkness that was on the face of the deep,' untenanted, inasmuch as no organic forms of plants or animals had yet been called into being."

How long this state of desolation, void, and darkness continued, we know not, nor does the seer keep our minds dwelling on the inert and stagnant condition of the world. Another spirit stirring announcement follows, in the words "And the spirit of God moved upon the face of the waters." How beautiful the better translation of the Hebrew word brooded instead of moved! The idea conveyed is that of a bird hovering in silence, and bringing into active life the egg, from which was erstwhile to burst the graceful creature, gay in plumage and charming in song.

The creative agency of the Holy Spirit is noticed in many other passages of the Scriptures, as well as by the Psalmist, in the words "Thou sendest forth Thy Spirit, they are created: and Thou renewest the face of the earth." As in the first verse, where the garnishing of the heavens, and the fitting them with their glorious host of worlds, scattered like dust in the immensity of space, is left unrecorded minutely, so here the mind is left to dwell on and contemplate the creative influence at work fitting and preparing the earth for its future state, and for the gradual and successive appearance of its wondrous organizations, each in the time appointed, afterwards to be exhibited to and related by the prophet.

During the long ages occupied in the formation of the granite crust of the earth, covering and enclosing the central fire, and of the deposition of the sedimentary rocks upon the parent granite, by the medium of the waters spread over the whole surface, the earth was unfurnished with life in any form. Herein Geology also corroborates Scripture. How long that period may have been cannot be even remotely guessed at; but, judging from our experience in superficial accumulations, millions of years must have passed away ere the life-giving influence of the Holy Spirit was exercised.

It has been urged that life may have existed in what has been denominated the Azoic formations, but destroyed by the heat under which the Metamorphic rocks were deposited. This is a mere assertion, and finds no proof in Geology as yet; still, even were it so, the seer only describes what he saw, and could not, by possibility, have discovered what forms were under the waters, and during the absence or obscuration of light. But the Spirit brooded over the waters—there was no dry land—consequently, the first life was submarine. What says the Stony Record?

The most careful examination, in every part of the world, of the Metamorphic rocks has produced no evidence of life; indeed, their crystalline texture, arising from the enormous heat then prevalent, and the contortions of the strata telling of turbulent periods, would scarcely lead us to expect its existence. Proceeding upwards towards the lower Cambrian rocks, even in the Longmynd series, where traces might be expected to be found, if they had ever existed, hardly any occur. The conditions are favourable, the strata are neither peroxidated nor conglomeretic, the materials are fine grained sand, the most likely to retain impressions of a delicate nature.

The heat was yet too great; but in the overlying clay slates of the Cambrian formation, in the Bray rocks of Wicklow, two forms—the Oldhamia, which is not yet settled either as a plant or a Zoophyte, and the Histeiderma, an Annelid or worm—have been discovered. Such is the faint dawning of life on our globe, scanty in extent and difficult to define, yet such as we might expect in a world of progression from the lower to the higher orders, from apparent inferiority to perfection. A little reflection will lead to the conclusion that the first created beings could not, under the circumstances in which they were created, have occupied a more fitting physical organization than as Zoophytes—creatures intermediate, and partaking of, vegetable and animal life, devoid of sight or hearing.

"Look at it reverently," said Sir R. Murchison to his surrounding friends, when he was handling the Oldhamia fossil for the first time, "it is probably the first animal created."

The extent of life in the waters goes on increasing as we ascend, till, in the Silurian system, the same orders are found in greater numbers, and better defined. There are, too, new forms. Graptolites, also a zoophyte, and the Lingula, a diminutive mussle or cockle, the inhabitant of a muddy sea·bottom, with its shell of a horny nature, from there being no lime to form a perfect shell.

Difference of latitude produces no fresh evidence. Over the whole world, wherever the strata have been examined, the same results are found, shewing that the same conditions, as to the state of the earth and its tenants, were universal. The lowly Zoophyte and Bivalve Mollusc, we therefore conclude, were ushered into existence before the Divine fiat for the appearance of light on our world had been issued. Endowed only with touch, and perhaps taste and smell, they possessed no organs of sight or hearing. Had they seen and heard, no reasoning mind could have concluded that darkness reigned over all.

The existence of these organs must have implied light, for God creates not in vain. Many other forms of similar organization are found in the lower Silurian beds, and it is highly probable that these also were created; and, indeed, that creation proceeded continuously before the light shone over the globe, as it did afterwards. How beautiful is the corroboration of the Sacred by the Stony Record, that before the light was, "The Spirit of God brooded over the face of the waters."

The harmony between the Records is perfect, a world void of life, covered by the waters, darkness over all, the exercise of the creative, vivifying influence of the Spirit, immediately following which there commences organic life, for which no light is required.

CHAPTER XII.

THE FIRST DAY.

3 And God said, Let there be light: and there was light.

4 And God saw the light, that *it was* good: and God divided the light from the darkness.

5 And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

LITERALLY translated, the passage is, and the evening was and the morning was one day. The use of the cardinal here, instead of the ordinal applied to the other second, third, fourth days, etc., may perhaps indicate that this one day was singled out as a starting point for the others.

By those who conceive that light only proceeds from the sun, it is considered contradictory that light should appear before the fourth day, when the sun was made the future source of light and heat.

Physics and Astronomy prove that, independent of the sun, there are countless sources of light possessed by the earth and other planets.

It is not for a moment to be supposed that the sun with its magnificent attendants, the planets with their satellites, the stars in their binary systems were not created, or were without light, because they are a part of those heavens which God created in the beginning; but that the sun, and moon, and stars, though formed and placed in their relative positions, had not acquired the appearances they now possess.

God, we are expressly told, had from the beginning "clothed Himself with light, as with a garment." He ever "dwelleth in light unapproachable to mortal eye, whom no man hath seen or can see." Light undoubtedly existed in the realms of space, shed abroad over the heavens.

The language used by the Apostle, "For God, who commanded the light to shine out of darkness, hath shined in our hearts," seems to uphold the idea, not of a creation of light, but of light breaking through the dense masses of clouds and mist enveloping the earth.

The ancient Jewish commentators conceived this light to be that of the sun, reserving for the fourth day some new development of the laws by which its light was regulated, when what had been irregular was made powerful and perfect. "Thus," remarks Mr Gray, "the darkness which was over the face of the deep became *partially* scattered, not indeed entirely; that was left for completion till the work of the fourth day, but sufficiently so to mark the revolution of time. And since this division between light and darkness—*i.e.*, between day and night—necessarily indicates the fact of the revolution of the earth upon its axis, whereby the one was, by the reflection of the solar rays, caused to succeed the other; an unanswerable argument, hence, seems furnished for the prior existence of the sun; how otherwise could there be a first, second, and third day?"

By this early mention of light, independent of the sun, it was clearly intended to guard mankind, as in the first verse, against the error of making the sun, as the Egyptians did Osiris, the parent of created things, not even of the phenomena of evening and morning. In the fifth verse of chapter ii., the same care and object is bestowed in shewing that, without the genial influence of rain, plants and herbs grew and flourished; so here, prior to the modifications of solar light, the phenomena of day and night were instituted, and that without the intense light of the sun, the process of vegetation went forward.

The expression does not negative the existence of the sun, it only informs us that, where darkness had prevailed, light was ordered to shine.

There are several sources, as we have intimated, from which light might have arisen independent of the sun, and some of them may be mentioned.

Humboldt, in his Cosmos, speaking of polar light, remarks—"The fact which gives the phenomenon its greatest importance is that the earth becomes self-luminous; that, besides the light which, as a planet, it receives from the central body, it shows a capability of sustaining a luminous process proper to itself. The intensity of the 'terrestrial light,' when the rays are brightest, are coloured, and ascend to the zenith, is a little greater than that given by the moon in her first quarter. Sometimes it has been possible to read print by it without effort. This terrestrial luminous process, going on almost uninterruptedly in the polar regions, leads us, by analogy, to the remarkable phenomenon presented by Venus, when the portion of that planet not illuminated by the sun is seen to shine with a phosporescent light of its own. It is not improbable that the moon, Jupiter, and the comets radiate a light generated by themselves, in addition to the reflected light which they receive from the sun, and which is recognised by means of the polariscope. Without speaking of the enigmatical, but not uncommon kind of lightning which, unaccompanied by thunder, is seen flickering throughout the whole of a low cloud for minutes together, we have yet other examples of *the production of terrestrial* light." To these remarks, Wagner adds—"The polar light, being an intermitting phenomenon, is an instance of a change of light and darkness independent of the sun, and exhibits an analogy to that succession which occurred before the creation of the sun." Schubert also observes—"What if every polar light, which we call the Aurora of the North, were the last glimmer of twilight of a world-day that has set, when the whole earth was surrounded by an expanse of air, from which the electro-magnetic forces radiated light in much greater degree than that of the polar light, and at the same time with animating heat, in a manner almost similar to what still occurs in the luminous atmosphere of the sun."

There is still another source of light. The process of crystallization, even under water, is attended by the evolution of light; and if it be true, as Geology proves, that the nucleus of the earth is made up principally of crystallized materials, the process of crystallization going on in such vast masses, and over the whole body, must have produced an evolution of light during the first, second, and third days sufficient to light up the world with the clearness of day. It is true, such light could scarcely appear and disappear so as to alternate in light and darkness, unless, by the revolution of the earth on its axis, by offering different points of polaristic antagonism in the rocky strata to the attraction and action of the great mass of body presented by the sun. The portion of the earth presented to the sun would be lighter, on account of its having attracted to itself the powers of producing light, while the portion farthest from the sun would be comparatively dark, and thus, as now, producing evening and morning. It is not meant positively to assert that any one of these causes or sources of light was that in operation on the first and succeeding days, until the sun was ordained to give light, although any or all united may have been so; but it is clear that the capacity of the earth, still possessed by the earth, for producing light was greater than now.

The testimony of the Stone Record is undoubted as to the existence of light. As we have beheld the dawn of life in the lowly, sightless Zoophyte and Mollusc inhabiting the world in darkness, so, passing from that state into the dawning light, we ascend higher in the scale of creation, and in the lower portions of the Silurian strata, we discover the Trilobite, and other Crustaceans, supplied with those wonderful organs of sight which enable them to enjoy the light poured down through the now pellucid medium of mist, less dense than aforetime, from the gradual cooling of the earth sending upwards clouds of steam less in quantity, and, therefore, more easily permeated by light.

The Trilobite has already been described, and must ever be an object of deep interest no less to the Philosopher than to the Theologian, both as regards its form, defended by plated armour and other adaptations for its peculiar habits, and particularly for its cone-shaped eye of numerous lenses, constructed on the same principle as those of the dragon-fly, enabling it to see before and behind, above and below, and affording a conclusive argument for the shining of the light on this Creation's first day.

There is still another argument for light during the first, second, and third days, and prior to the appointment of the sun as its medium, in the fact that the researches of Geology prove that, under superincumbent strata, there exist the fossil remains of buried forests, and gigantic trees, palms, and ferns, on the icy shores of Baffin's Bay and Melville Island, proving that, even at the poles where night, during a considerable portion of the year, reigns supreme, there once on a time prevailed light and heat sufficient to produce a vegetation similar to that of the torrid zone of our time.

The learned Candolle on this point remarks—"It is necessary to suppose that a more equal light and heat were at that time shed over the polar regions, a light now unknown; and it appears to me a certain fact that the fossil vegetables of Baffin's Bay were lighted in a different way from those which now exist on the earth."

Such a degree of light, and such a source, must have similarly lighted up the infancy of our earth.

THE SECOND DAY.

6 ¶ And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.

7 And God made the firmament, and divided the waters which

were under the firmament from the waters which *were* above the firmament: and it was so.

8 And God called the firmament Heaven. And the evening and the morning were the second day.

We have here an account of the progressive nature of the operations by which the earth was being gradually prepared for its future inhabitants. According to the Scriptures, the waters rested upon the waters; according to Geology, the clouds of steam rested upon the boiling ocean below, covering the whole skeleton earth. But, on the second day, a separation took place at the command of God. The firmament—literally and properly translated an expansion, our atmosphere—was formed, dividing the clouds from the seas below. The clouds were elevated.

"And God made the firmament, and divided the waters which *were* under the firmament from the waters which *were* above the firmament: and it was so." That these waters, transferred to a more elevated locality in the heaven, were the clouds, see *Job* xxvi., 8, "He bindeth up the waters in his thick clouds; and the cloud is not rent under them." And again, *Proverbs* viii., 27—29, where the allusion to this work of the second day is evident, "When he prepared the heavens, I *was* there: when he set a compass upon the face of the depth: WHEN HE ESTABLISHED THE CLOUDS ABOVE: when he strengthened the fountains of the deep: when he gave to the sea his decree, that the waters should not pass his commandment: when he appointed the foundations of the earth."

The firmament is, therefore, the expansion or interval between the sea level and the clouds, and, employed in a more extended sense, is used to embrace the sky, because, when the clouds are dispersed, the expansion has no apparent limit, but becomes fused into space.

Prior to the formation of the firmament, the continuous evaporation of the waters, arising from terrestrial heat, would produce, from the attraction of gravitation by the earth, an incessant return of the water in tepid drops of rain, as the vapours became condensed by cold in the locality of heaven to which they had ascended; but the introduction of an elastic atmosphere would uphold these aqueous vapours in clouds, until subjected to other affecting causes.

"It is the atmosphere," says Lieutenant Maury, "which draws up vapours from the sea and land; retains them dissolved in itself, or suspended in cisterns of clouds; carries them from one hemisphere to another; and throws them down again in snow, rain, or dew, when they are required. It is the atmosphere which bends the rays of the sun from their path, to cause them to produce the bright and lovely tints of twilight, or of early dawn; for without the atmosphere, the sun would burst on us on a sudden at his rising, without the gentle preparation of the dawn, and would disappear so suddenly at his setting as to remove us at once from the blaze of noon into midnight darkness. Without the atmosphere, we should have no twilight to soften and beautify the landscape, no clouds to shade us from the scorching heat. It is the atmosphere which brings to our lungs the gas which vivifies and warms our frames, which feeds the flame of our life, as it keeps up the flame of our fires. It is the atmosphere which carries away the air which we have destroyed by breathing it, and takes it to feed the plants. The carbonic acid, with which to-day our breathing fills the air, to-morrow seeks its way round the world. The date-trees that grow round the falls of the Nile will drink it in by their leaves; the cedars of Lebanon will take of it to add to their stature; the cocoa-nuts of Tahiti will grow rapidly upon it; and the palms and bananas of Japan will change it into flowers. The atmosphere is a great reservoir which supplies the food of living creatures; for the animal feeds on the plant, and the plant sucks in much of its food from the air." And, says Dr Buist, "The atmosphere is a spherical shell which surrounds our earth to a depth unknown to us." Its upper surface cannot be nearer to us than fifty, or further off than five hundred miles. It surrounds us on all sides, yet we see it not; it presses on us with a load of fifteen pounds on every square inch of surface of our bodies, or from seventy to one hundred tons on us in all, yet we do not so much as feel its weight. Softer than the softest down, more impalpable than the finest gossamer, it leaves the cobweb undisturbed, and scarcely stirs the lightest flower that feeds on the dew it supplies; yet it bears the fleets of nations on its wings around the world, and crushes the most refractory substances with its weight. When in motion, its force is sufficient to level the most stately forests and the firmest buildings to the earth, to raise the waters of the ocean into ridges like mountains, and dash the strongest ships to pieces like toys. It warms and cools, by turns, the earth and the living creatures that inhabit it.

How wonderful the preparation for the work about to follow! The clouds to store the waters; the atmosphere to supply air for the nourishment of life and breath to the plants and higher animals so soon to be placed on the rising earth, the surface of which would be a vast humid hotbed. How perfectly consistent the Mosaic narrative! How strange to the advocates of non-inspiration, how wonderful, how profound, must appear this knowledge of the properties of air, of gases, and of fluids, all unknown by men of science until Galileo's day, two hundred years ago, and now only but imperfectly understood!

During the occurrences of this second day, great portions of the Silurian rocks, grain by grain, particle by particle, for thousands of feet in vertical thickness, were being deposited, and their fossil remains of fucoids, submarine plants, Trilobites, Cephalopods, and other Crustaceans and Molluscs similar in construction and habits to many of our times, afford powerful evidence that similar circumstances, as regards light, atmosphere, and seas, prevailed then as now. An atmosphere must have been formed, or in process of formation, when their lives were organized.

But no plant grew, no tree reared its head towards heaven, there was no spot of dry land whereon to rest the sole of a single foot, all life was submarine, plant and animal; and to many, indeed most, of earth's inhabitants, light and air was a necessity of existence.

CHAPTER XIII.

THE THIRD DAY.

9 ¶ And God said, Let the waters under the heaven be gathered together unto one place, and let the dry *land* appear: and it was so.

10 And God called the dry *land* Earth; and the gathering together of the waters called he Seas: and God saw that *it was* good.

11 And God said, Let the earth bring forth grass, the herb yielding seed, *and* the fruit tree yielding fruit after his kind, whose seed *is* in itself, upon the earth: and it was so.

12 And the earth brought forth grass, *and* herb yielding seed after his kind, and the tree yielding fruit, whose seed *was* in itself, after his kind: and God saw that *it was* good.

13 And the evening and the morning were the third day.

BEFORE considering the works of the third day, it may be well to remark that the original Hebrew, translated literally, expresses the command as given in the future, and this applies to all the similar expressions in Genesis, thus—Let there be light, etc., signifies "Light shall be," "A firmament shall be in the midst of the waters," "The waters under the heaven shall be gathered together," "The earth shall bring forth grass," etc.

We have now to contemplate two connected and consecutive creations—the separation of sea and land, and the clothing of the earth with its mantle of vegetation.

How plainly the narrative describes the gathering together of the waters! How few consider, for a single moment, how much is included in these words! We are struck with wonder by the grandeur of ocean ever moving, awed by its deep-toned voices, terrified by its fury, delighted with its changing colours reflected from every curling wave-top and fleeting spray, or refreshed by its balmy breezes; but we do not realize its value in the great economy of nature.

Occupying the larger portion of earth's surface, extending to depths supposed equivalent to the mountain elevations of the land, occasionally disastrous to life and property, it not only affords means of easy intercourse with other nations, ministers to comfort and civilization through its numerous marine productions, but is essential to life,—animal and vegetable,—purifying, by its constant motions, the atmosphere they breathe, and, from its reservoir, sending off a perpetual supply of vapours which, redistributed by means of the clouds, are the sources of moisture and fertility to the soil. Fickle and unstable as it appears, and in poetry but the synonym for continual change, it is yet more stable and unchanging than the solid earth. Truly it has been said—

> "Time writes no wrinkles on thy azure brow;
> Such as creation's dawn beheld, thou rollest now."

Philosophy declares that here and there its depths have altered and are altering, and that sea and land have repeatedly changed places; but its level or quantity have never changed, and its general depths remain ever the same. In the ocean, the laws of nature are exemplified on a great scale. Gravity keeps it spherical. Equilibrium keeps it in constant motion. Attraction produces the tides. Reflection and Refraction colour it with tints innumerable.

Full of life, it contains forms and organisms of the most interesting, astonishing, and extensive character, beyond the conception of the most fertile imagination. Passing by the vast amount of animal life with which it teems, but which, in numbers, are far exceeded by its microscopic tenants, it may be interesting to contrast two extreme classes in its vegetable life—the Diotomaceæ and Fucus Natans. The former consists of a race of minute vegetable productions which propagate by subdivision, and have the power of withdrawing earthy matter from the waters in which they live, forming a shell or covering indestructible, and gradually accumulating in the bed of the sea. An examination of tracts of land, formerly ocean beds, shows that whole chains of hills, beds of marl, and other soils consist of the earthy remains of these minute plants, discoverable individually only by the microscope.

The latter—the Fucus Natans, or floating sea-weed—forming the Weedy Sea, or the Mar de Sargasso, of the Phœnicians and Spaniards, occurs in the Atlantic, and occupies areas west of the meridian of Fayal and east of the Bahamas, which, with the transverse band uniting the two portions, is six or seven times larger than that of Germany, covering the ocean as if with a mantle. Its stems have been observed by Lamouroux more than 800 feet in length.

At first thought, it might be imagined that the millions of tons of water, momently discharged into the sea from thousands of large and small rivers, would increase its size; but, like all others, God has so wisely arranged these circumstances that an equivalent quantity is taken up into the atmosphere by evaporation, and the minute, saltless particles, distilled in nature's laboratory thus suspended, are borne away on the wings of the wind to distant lands, there, through another wonderful provision of drops instead of torrents, and in snow flakes instead of ice masses, to nourish the inhabitants of the earth, and again fill the river courses. The force necessary to raise such masses of water to the clouds in one year, M. Arrago calculates as greater than all the people of the earth could exert in 200,000 years.

The Scripture narrative is simple and precise. Formerly we were told of water, light, and air; now we have the earth and the plants—for which these were preparations—of which the vegetable world is composed, and the conditions of its life and prosperity.

It may be, and has been by sceptics, considered strange, and as militating against the truth of the narrative, that the vegetable tribes should make their appearance before the sun, and flourish without the influence of the solar light and heat which are, in present circumstances, necessary to their growth. The difficulty has been met by the remarks already given on the action of light, possibly not under the same conditions as now, the pre-existence of the matter of the sun, perhaps, not shining with the same degree of luminosity as now, and the certainty of great heat derived from the internal fires of the earth.

That the arrangement of the detail of the narration is not of chance, is evidenced by the remark in the second chapter, where the plant of the field is mentioned as first produced.

The earth, liberated from the sea, now assumes its position as the future abode of a higher order of creation than what had formerly prevailed, and, like as the Divine Spirit "brooded over the waters," so now, under the same influence, the barren earth becomes imbued with fertility in all its beauty and gorgeous colouring, covering its naked form with a magnificent robe of vegetation, but owning no independent existence.

The inspired writer does not describe how the waters were gathered together; but we have in the Psalms (civ., 5—9) an accurate poetical description of the great event thus literally translated—

"He hath founded the earth upon her bases,
She is not removed for ever.
The deep, as with a garment, hast Thou covered:
The waters stood above the mountains.
At Thy rebuke they fled;
At the voice of Thy thunder they hasted away.
The mountains ascended, the valleys descended,
To the place which Thou hast founded for them.
Thou hást set a bound which they do not pass over;
They do not return to cover the earth."

Geologically, we are now arrived at the commencement of the Devonian period, or Old Red Sandstone system, ushered in, according to the testimony of all Geologists, by great and prolonged volcanic disturbances, during which many of the great mountain chains of the world were upheaved, as the Silurian strata on their sides testify.

In their elevation, vast tracts of land would accompany the higher peaks, producing corresponding depressions into which the waters would of necessity, from gravity, retire.

Islands, too, would arise from the deep by the same forces, summits of lesser submarine mountain masses, yet sufficiently elevated over the waters to form dry land.

The causes which led to these wondrous changes are to be gathered from the records of, and deductions from Geology.

After ages of the disintegration of the igneous rocks and its deposition in new strata, after generations on generations of Zoophytes, Molluscs, and Crustaceans, had died, depositing their shells in the ocean beds as carbonate of lime, the physical laws ordained and arranged from "the beginning," continuing their action, arrived at a peculiar point.

The bulk of the world had gone on radiating its heat into space, until—its fluid mass having contracted in size—the crust, becoming subjected to the overwhelming crushing powers of its own gravity and of the surrounding air, gave way over the greater portion, resulting in rents and fractures everywhere apparent in the change of the position of the strata, some being driven upwards, some downwards, some perpendicular, some overlapping each other.

The central forces, finding vents as volcanoes, poured forth torrents of liquid earth, filling up hollows, displacing seas, and supplying ores and metals, particularly ron, from the great internal storehouse.

The mountains of the earth may, at first sight, be thought masses too great to have been thrown up in this way; but, if a section of the world, embracing the highest land, be taken through Asia from the Persian Gulf to the Yellow Sea, including the Himalayas, of which range Dhawalagiri, 28,174 feet high—the loftiest in the world—is a part, it will be seen that, compared with the body of the earth, the elevation bears no greater proportion, nay much less, than the elevations on the rind of an orange to its body. Earthquakes are strictly analogous to such catastrophes, but on a scale infinitely inferior.

What an awful scene, read by the light of Geology, do these simply expressed words "Let the dry land appear" conjure up before the mind. The crust of the earth, formed under the ocean, heaving and surging like the raging, covering waves, rising upheaved by the mighty volume of central fire, and at length bursting by swelling gases into volcanic outlets. What a birth for the dry land, welcomed by the voices of the roaring thunder and the hissing waters! And the sea, relinquishing its universal empire, fleeing to its appointed places! "The Lord set a compass upon the face of the deep: He gave to the sea His decree that the waters should not pass His commandment, when He appointed the foundations of the earth."

The dry land having appeared at the Divine summons, the work of furnishing and clothing begins. Vegetation is created the percursors of a large family, numbering, according to some, 133,000 different kinds; and, wonderful to contemplate, each producing its kind, and none other, until this day.

A seed of wheat has never yielded barley, nor the oat the rye, nor the acorn the chesnut, nor the rose the sun-flower, nor the plum-tree the grape; each and all have yielded seed and "fruit after their kind."

"Lo! in each seed, within its slender rind,
Life's golden threads in endless circles wind;
Maze within maze the lucid webs are rolled,
And, as they burst, the living flame unfold.
The pulpy acorn, ere it swells, contains
The oak's vast branches in its milky veins;
Each ravelled bud, fine film, and fibre line,
Traced with nice pencil on the small design.
The young Narcissus, in its bulb compressed,
Cradles a second nestling on its breast,
In whose fine arms a younger embryo lies,
Folds its thin leaves, and shuts its floweret eyes.
Grain within grain successive harvests swell,
And boundless forests slumber in a shell."

Every one will vividly recollect, and recall with pleasure, the delight equally experienced in childhood, and in mature years, by the appearance of the snowdrop, the crocus, and the violet, from amid the snow, or the moss-covered dells of the woodland, harbingers of the coming spring-time. How insensibly we enter into the spirit of hope and joy so well pourtrayed in the words "Lo! the winter is past, the rain is over and gone, the flowers appear upon the earth, the time of the singing of birds is come!"

These lessons are not only our earliest, but are instructions in awakening appreciations of grace and beauty, and in improving our feelings of susceptibility. In mature life, a due consideration of the vegetable world impresses our minds with evidences of Almighty design, benevolence, and never-ceasing Providential care, in the food which satiates hunger, gratifies the taste, supplies medicine in sickness, materials for comfort and habitations, means of transport, and continual pictures and scenes of ornament and beauty.

While it binds all nature into one grand whole, the immense preponderance of the vegetable over the animal world overwhelms the mind with its vastness. In examining the evidence borne by the Stony to the truth of the Scripture Record, it is equally profitable to examine the order of creation, and the designs employed for rendering each and all its portions unspeakably harmonious.

In the creation of vegetables this feature is peculiarly striking, both as regards the time when they were produced, and the objects of their production.

The nourishment of vegetables consists of water, carbonic acid, and ammonia derived from the atmosphere, and salts, metallic oxides derived from the earth.

The volcanic disturbances formerly referred to supplied the earthy nourishment in abundance, and thus so much of their necessary provision was supplied before the plants made their appearance. Two other conditions prevailed unfavourable to the existence of air-breathing animals, but highly favourable to the growth of plants—an excess of carbonic acid in the atmosphere, and a great amount of heat arising from the earth. While plants separate all excess of carbonic acid from the air, they supply oxygen, the element essential to respiration, and thus maintain the atmosphere in a state fit for breathing.

Thus, in the hands and by the will of the Creator, the air was undergoing a gradual purification for the animals shortly to be placed on the globe. The polypi were abstracting from the water, as carbonate of lime, the same gas deleterious to animal life; while, fixed as carbon by the vegetables, and stored up as decayed vegetable matter, afterwards changed by time and pressure, it supplies the coal of future ages.

Having now passed through the Silurian age, and entered fairly into the Devonian or Old Red Sandstone era, we find again that the Stony bears out and confirms the Scripture Record, for it is at the very top of the Silurian rocks, and where the Sandstone commences, that the first faint traces of land plants are found. "Even in the Devonian rocks," says Sir R. Murchison, "such plants are rare, and only begin to prevail as we pass upwards and are surrounded by the spoils of the first great woody era."

On many portions of earth's surface, the hollows resulting from former convulsions still contained water, as shallow inland lakes, or lagoons, subject to occasional inroads from the sea.

These, by evaporation, resulted in swamps, and in these swamps grew up the most astonishing and luxuriant vegetation, nurtured by a moist and hot climate, into forests of such density and extent as to be almost beyond human conception.

In every ray of light from the sun are contained heat, light, and that principle known as Actinism, which produces chemical changes in whatever it reaches. Applied to photography, it has been turned to account in the present day. Deprived of Actinism, plants remain soft and succulent; supplied with it, woody tissue is formed. Under shade, all plants are more or less pulpy, while in the unclouded sunbeam, they are more consolidated and fibrous. Again, during night the decomposition of the air and absorption of carbonic acid by plants is almost suspended until the day, with the accompaniment of light, renews the operation. The excitement of light and heat is, therefore, needful for the growth of the plants, while the excitement of the Actinism of the sun's rays is requisite for consolidation and wood.

There is yet another point to be considered as bearing on this subject. The green colour of plants is due to the formation of a peculiar chemical compound, and its deposition in their cells, named "chlorophyll;" and this compound is only produced when the plant is exposed to light. No plant grown in the dark is green. Yet but little light, in certain conditions, is apparently requisite. Humboldt observed a vine-leaved fucus vegetating at the bottom of the ocean, at the depth of 192 feet; notwithstanding, its leaves were as green as our grasses. He estimated that, at such a depth, the fucus could only have received light equal to half of that supplied by a candle, at the distance of a foot. This fact, and others of a kindred nature, indicate that the influence of light from the solar rays alone is not absolutely necessary for the chemical formation of the carbonate of iron, the presence of which gives the green colour to the parenchyma of plants.

Recalling the proofs we have submitted—the heated state of the earth, the existence of light before the appointing of the sun as its great distributor, the appearance of the earth and its elevation above the waters, the creation of vegetables, their means of subsistence and growth and their condition, the results of these means, and the absence of the solar actinic rays—it must be abundantly evident to every unprejudiced mind that the Geological Record fully substantiates the Mosaic Narrative.

CHAPTER XIV.

THE FOURTH DAY.

14 ¶ And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years:

15 And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so.

16 And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: *he made* the stars also.

17 And God set them in the firmament of the heaven to give light upon the earth,

18 And to rule over the day and over the night, and to divide the light from the darkness: and God saw that *it was* good.

19 And the evening and the morning were the fourth day.

SUCH was the work of the fourth day. Had there been any human being to behold the wondrous spectacle, then would have burst upon his astonished vision, for the first time, the stars twinkling in their purity, and the moon careering in all her reflected brightness across the blue vault of heaven, now comparatively cloudless; and, as he gazed in admiration, mixed with awe, would the watcher catch faint dawning rays gilding the mountain tops, the harbingers of the glorious sun hastening to his rising. Anon, he would follow his ascension to the zenith, shedding o'er all the fresh green earth a flood of light and vivifying influence. And again, as he sank behind the western hills at eventide, leaving, one by one, valley and forest, lake and mountain in shadow, tinging them, as he departed, with hues of gorgeous colouring, would his gaze be fascinated by moon and stars taking up their tale, and proclaiming "the hand that made us is Divine."

It is to be remarked that Moses does not say the sun, moon, and stars were *created.* Like as the command "Let the dry land appear," formerly created, so now, let there be light is the expression employed. As the earth was made to appear by the gathering together of the waters, so it is likely that, in a similar manner, the heavenly bodies were made to appear, by the dispersion of the clouds, as set in the firmament.

That these heavenly bodies were included in the creation of heaven, referred to in the time of the beginning, is held by almost all Theologians and Christian Philosophers, and with sufficient reason. Whether then, as now, lighted up is a point not so generally agreed upon. Some hold that, by reason of the clouds enveloping the earth, arising from the steam which ascended from the heated waters, the heavenly bodies lighted up, as now, were invisible, and that the command "Let there be lights" merely referred to their appearance. Others, that the earth turning round as now, revolved in darkness around the sun, an equally dark body; and this idea is supported by the fact that the sun is a powerful magnet, which, by the Divine command, becoming surrounded by the light formerly scattered over space, now forms the luminous atmosphere by which he is enveloped.

This is further confirmed by the words employed in the narrative, and which describe the relation between the light created on the first day, and the appointment, or making of the lights, upon the fourth. Light ("or") being employed for the first day, while light-bearers ("maoroth") are used for the luminaries of the fourth.

But not only were they appointed "to give light upon the earth, but also to rule over the day and over the night," "to be for signs, and for seasons, and for days, and years," and so not only regulate the time of beings afterwards to be created, but to be useful to, and to develop their mental powers.

And how powerfully do the Stony Records prove the inspiration of Moses in his account of the existence of light before the sun's rays reached the earth, and the immediate changes which took place when the great heavenly bodies were made light-bearers and rulers of seasons!

No one, unless under the direction of the Spirit of God, would have postponed the appointment of the, to us, source of light, to a period far distant from the appearance of light itself; nor could any one have anticipated the exhumation, from rocks far down in the body of the earth, of evidences undoubted that light existed without its being directly transmitted from the sun.

"Now, if the work," says Crofton, "of 'the fourth day' were an act of 'creation,' it is hardly conceivable but that we should find it alluded to as such; whereas, on the contrary, the inspired writers make their allusions as if it were one of 'appointment.'"

But possibly some one may yet object. If the light were not created on the first day, or the sun, moon, and stars upon the fourth, why were they brought at all into the record of creation? Why did not the inspired narrative omit all reference to those things which had any previous existence, and proceed at once to the various originations of organic life, after having announced the first cosmical creation and preparation of the world for man? To this it may be answered, that the object of their introduction very probably may have been to show their distinction from, and subordination to, that Divine Being whose command, upon those days, called them into action.

It should be remembered that one great design of the Jewish polity was to preserve a people retaining the worship of the true God, in the midst of a world sunk in ignorance and idolatry; and it must also be recollected that the Jews, at the time they received their laws from Moses, were upon their way, after having become acquainted with the heathen worship of Egypt, to settle amongst the Eastern nations, who were given up to the idolatrous adoration of light, fire, and the heavenly bodies.

The after history of the Israelites but too clearly displayed their proneness to run into the sins of the surrounding countries; and foremost of these, into that of idolatry. A Prescient Spirit, we can hardly doubt, would guard them—by the narration of the works of the "first" and "fourth" days—from that worship of light and fire, and of the sun, moon, and stars, which was the practice of the circumjacent nations. This view appears confirmed by the following passage:—(*Deut.* iv., 16, 19) "Lest ye corrupt *yourselves*," etc. "And lest thou lift up thine eyes unto heaven, and when thou seest the sun, and the moon, and the stars, *even* all the host of heaven, shouldest be driven to worship them, and serve them, which the Lord thy God hath divided unto all nations under the whole heaven."

We are now arrived Geologically at the conclusion of the Carboniferous period, and entering upon the Permian and Magnesian Limestone eras. During the former, heat, light, and shade prevailed. The sun's rays being absent, no woody tissue could be produced; and it is a remarkable fact that no season rings of ligneous tissue are found in the fossil trees of the Carboniferous age. On the other hand, when the great lights were made to appear, and alternating seasons commenced their course, the woody tissue becomes apparent, and the season rings, the products of the sunbeams, confirm the Mosaic narration of their appointment of signs for seasons.

Another remarkable evidence of the arrangement of light, and the appointed duties of the "great lights," consists in the fact that the fossil remains of plants and animals, in all the strata, down to the close of the Carboniferous formation, exhibit the same uniform characteristics. No matter whether the strata be examined in Africa, Europe, America, or Asia, the fossil organisms found are the same, thus proving a climate and other conditions the same universally prevalent.

The effects of climate, on both animal and vegetable life, are so well known that it seems scarcely necessary to remark that identity of species, where no accidental causes of transmission have arisen, proves almost identity of climate, a fact evident to Lucretius, but better understood by ourselves.

"Thus nature varies; man and brutal beast,
And herbage gay and scaly fishes mute,
And all the tribes of heaven, o'er many a sea,
Through many a grove that wing, or urge their song
Near many a bank or fountain, lake or rill,—
Search where thou wilt, each differs in his kind,
In form and figure differs."

Dr M'Ausland, in his remarks on this subject, well says "There is a remarkable and well-established geological fact, which is even more conclusive as to the change of the climatal condition of the earth, at this period, from a uniform to a varying temperature dependent on the sun, and producing, for the first time, the phenomena of the seasons.

"The influence of climate, in diversifying the character of the animal and vegetable products of different regions of the earth, is well known. The animals and plants of colder countries are altogether different from those which are found in more genial climes; and identity, or similarity of species, has always been considered to be indicative of identity or similarity of climate. Now, it is remarkable that the organisms of the various systems, prior to the Permian, are found to be the same in all the countries in which they have been discovered, whether in the northern or southern hemispheres, in the polar or equatorial regions.

"The Silurian and Carboniferous fossils of all the districts of Europe in which they occur, not only correspond with each other, but with the fossils of the same systems in India, America, and Africa, though the mineralogical character of the deposits in which they have been buried are, in many instances, very dissimilar. From this identity of the plants and animals in these early epochs, we may safely infer that uniformity of climate prevailed throughout the globe down to the days of the Permian. On the other hand, the fossil remains of the plants and animals of the systems that succeeded the Permian are found to differ materially from each other in the different countries in which they are discovered. Those of the Lias, the Oolite, and the Chalk are very dissimilar in form and appearance when found in widely separated localities; and the organisms of the Tertiaries in distant countries differ as much from each other as the animals and plants of the same countries in our own era. The Megatherium and Mastodon were confined chiefly to America, while the Mammoth was a native of Europe; and the Mammals of India are different from both. From these facts, it may be inferred that, subsequent to the Permian age, uniformity of climate—which was the result of central heat diffusing an equal hothouse temperature throughout the globe—ceased to prevail; and that diversity of climate, of which the sun is the principal cause, commenced and has ever since prevailed on the earth. Consequently, the sun became at this era not only the visible sign for the distinguishing of days and years, but also the efficient cause of the seasons. It was ordained, as described by Moses, 'for signs, and FOR SEASONS, and for days, and years;' and has ever since endured as a faithful witness in the heavens."

Again, the fossil remains of the animals of the Permian period exhibit a marked advance upon their predecessors in the scale of existence.

Although the point has been doubted as to whether carbonic acid gas prevailed to the full extent urged by some, there is no doubt it existed largely in the atmosphere, which became greatly purified through its absorption, and by the plants of the Carboniferous formation. The influence of the sun contributed still more to this end, and prepared the world for a higher class of air-breathing animals.

During the Carboniferous age, batrachians—the link between fishes and reptiles—and insects of a lowly grade, able to exist in a less pure state of the atmosphere, were the air-breathing races; but the arrangements of the fourth day introduced conditions favourable to a higher race of terrestrial animals, whose lives depended upon a greater supply of oxygen, and diminution of carbonic acid, gases; and these conditions were accelerated and maintained by the solar rays. Accordingly, we find that, in the progress of the great work, they were ushered into being on

THE FIFTH DAY.

20 ¶ And God said, Let the waters bring forth abundantly the moving (creeping) creature that hath life, and fowl *that* may fly above the earth in the open firmament of heaven.

21 And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that *it was* good.

22 And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth.

23 And the evening and the morning were the fifth day.

The original passage, as translated thus, does not convey the meaning with that exactness of detail which is requisite, inasmuch as it has originated the idea that the work of the fifth day comprises the creation of all submarine, amphibious, and terrestrial animals.

The three great successive creations of organised beings described by Moses—herbs and trees, marine animals and flying creatures, animals which walk or creep—do not exclude the creation of the humble Zoophytes, Molluscs, Crustaceans, and Fucoids of the first day. From the moment the Spirit of God began to breathe life into the waters, God never ceased to create until the seventh day.

More or less in numbers of the same kinds of animals or plants might be created at first; but the creation of new families of plants and new kinds of animals was continued during the whole period of days. The Bible merely informs us that He began to create the plants, He began to create marine animals and birds, He began to create terrestrial animals, and continued constantly creating until He formed creation's king, an immortal being.

If we have read the Stone Record aright, the words used by Moses as to the creative action of the Spirit refer to, and are corroborated by, the creation of the exclusively submarine life on the first day. The tenants of the muddy bottoms of the ocean were likely not exhibited to him, and he describes only what was presented to his seer vision.

The language of the Psalmist, "Thou sendest forth Thy Spirit, they are created," was to him a verity; and, therefore, the simple announcement of the brooding action of the Spirit conveyed sufficiently the fact that life-creation had commenced in the waters, without his entering into details of so lowly and small a portion, even if it were exhibited to him; while, otherwise, vast and more important features, being unrolled before him, occupied *his* gaze and filled his soul.

The higher and nobler considerations of the ultimate career of the human family were no doubt pressing on his thoughts, and struggled for a solution. Compared with these, the curiosities of the world had less interest. His was not the age of philosophical investigation, although that be the delight and pride of the present day. Reason was more exercised in the contemplation of Almighty power and goodness in nature's works, than in the curious discoveries of natural science. "Ask now the beasts and they shall teach thee, and the fowls of the air and they shall tell thee. Or speak to the earth and it shall teach thee, and the fishes of the sea shall declare unto thee. Who knoweth not in all these that the hand of the Lord hath wrought this?"

Dr M'Ausland translates the passage "'And God said, Let the waters swarm forth (bring forth abundantly) *the reptile that hath the breath of life*; and let fowl fly over the earth upon the face of the firmament of heaven. Then God created *great sea monsters*, and every soul of the *creature that creepeth which the waters swarmed out after their kind*, and *all flying of wing* after its kind: and God saw that *it was* good.'

"The word which occurs in the twentieth verse is translated, in our version, 'the moving creature;' but, according to Gesenius, it signifies '*a reptile*.' The word occurs in sixteen places in the Pentateuch, and in all of them, with the exception of *Leviticus* xi., 10, 11 (*vid. Heb.* orig.), it has been rendered in our version 'creeping thing.' In *Lev.* xi., 10, 11, it plainly designates an aquatic animal different from a fish having fins and scales. According to the same authority, the word, which in the twenty-first verse is translated 'the creature *that moveth*,' ought to be rendered '*the creature that creepeth.*' The same verb occurs in fourteen other passages of the Pentateuch; and in all of them it is translated so as to indicate a creeping motion.

The expression in the twentieth verse, translated 'creature that hath life,' ought to be rendered 'the breath of life.' The word, according to Gesenius, signifies *breath*, being, derived from the word to breathe strongly, to pant."

The Permian and Oolitic systems are those to which our Geological examination has conducted us in confirmation of the Sacred Record, and it is really astonishing to mark the evidence afforded by Geology to the truth of Scripture.

Additional fishes made their appearance, but it was particularly in the forms of great sea monsters—air-breathing animals—of amphibious creeping things, and of winged creatures, all strange and grotesque, that the waters most abounded. Frog-like and bird-like they crawled over the slimy earth. It was the age of destructive creatures; the sea swarmed with oviparous reptiles, "great sea monsters," Icthyosauri, and Plesiosauri; the land with monster reptiles, such as the Iguanodon.

It was an age of monster conflicts among monsters; and yet, amid all this great struggle, there was an introduction of a still higher grade of terrestrial life in some small mammalia, or animals which suckle their young. Few they were, and small at first; but they were an advance upon the reptile life, and a class destined to increase and live long ages after the millions of monsters, which prevailed when it was thus ushered into being, were buried in one common tomb.

Their organic remains testify the character of the creeping things which the waters swarmed out.

Of the Saurians, the remarkable Ichthyosaurus, fitted to inhabit deep waters and to creep upon the land, an air-breathing, cold-blooded, carnivorous fish-lizard, with jaws six feet in length furnished with, in some instances, 180 teeth, its four paddles each made up of more than 100 bones, its eye so constituted for perfect vision as to form a telescope or microscope at will, so as to descry its prey in deep or shallow water by day or night; and the Plesiosaurus, also akin to the lizard, but with a neck like the body of a serpent, paddles like a whale, and the trunk and tail of an ordinary quadruped, fitted for shallow waters, where, lurking among the reeds, or creeping slowly on the land, it seized its prey.

How wonderfully these fossils illustrate the written word!

And again, the Pterodactyle; how its remains illustrate what, proceeding from the waters, "may fly above the earth!" Also a Saurian reptile with the head and neck of a bird, the mouth and teeth of a reptile, the wings of a bat, and tail of a mammifer, the eyes fitted to discern its prey in the night, possessing ability to fly or swim, the animal must have been a monster among monsters, and one most at variance with living forms.

Besides these, the soft sand tells its wondrous tale in the footprints of enormous wading birds, a family which, in succeeding ages, was to multiply and perform an important part in nature, while benefitting man in the destruction of insects, cheering and enlivening the solitary places of the earth by their songs, and, by their gorgeous plumage flitting among the dark foliage, adding to the beauties of the landscape.

Of the creatures proceeding from the waters, they have all certain peculiarities in common, air-breathing, amphibious, oviparous—the birds *swim* in the air, while fish *fly* in the sea. Dr Prevost has discovered another similarity of great interest in the blood globules of fishes and birds, quite different from the blood globules of those animals created on the sixth day.

Thus, the wonderful description of Moses is consistent, because true; and again the Sacred is confirmed by the Stony Record.

THE SIXTH DAY.

24 ¶ And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.

25 And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that *it was* good.

While the creations of the fifth day were in connection with and proceeded from the waters principally cold-blooded and oviparous, those of the sixth proceeded from the earth, and were chiefly warm-blooded, and mammalia; or procreating their species by uterine gestation, the beasts of the earth, the cattle after their kind, and the "things that creep upon the earth."

The birds, large and small, appeared in swarms upon the shores of the seas.

The morning of this day of yet greater wonders than any that had previously passed, rose radiant o'er the earth, lying in vigour, and strength, and beauty, waiting for yet greater evidences of the Divine Power.

As the cheering sunlight dispels the storms of night, so the sixth day's work, by its glories, sweeps into the past, the convulsions and violent death, the monsters and destructive forms of earth's youth, by the peaceful scenes, the comparatively new, and mild, and beautiful generations of animals, fruits, and flowers, that look upward and smile in the garden of life.

The rank vegetation of the Carboniferous period had given way to the trees of the forest and the fruit trees; and the rank herbage to a carpet of flowers, blooming in many a pattern and of many colours, filling with perfume the fresh, untainted air, wherein sported countless bright winged insects.

The Labyrinthodon and the Iguanodon had passed away from the land, and the Icthyosaurus had died the death it had so often inflicted, and deposited its remains under the waters of the sea, its former element and home. These were succeeded by crocodiles of monstrous size, and by land animals truly gigantic. The Pampas of South America were lorded over by the Megatherium, a huge sloth 12 feet long and 8 feet high, rooting up trees like grass; India by the Sivatherium and Rhinoceros, fearing the attacks of no enemies; Germany by the Dinotherium, 18 feet in length, and of proportional height, far exceeding the others in bulk; but these too passed away before the Adamic age, and were succeeded by other mammalians smaller in size, in bone, and muscle; but higher in nerve and instinct.

Of the great fossiliferous periods we have considered, as illustrating the Divine Record, "All are agreed," says Hugh Miller, "that what chiefly distinguishes the first of these is not its shells or its fishes, though it possessed a few, but its 'gorgeous flora.' It was emphatically the period of plants, 'of herbs yielding seed after their kind.' In no other age did the world ever witness such a flora; the youth of the earth was peculiarly a green and umbrageous youth—a youth of dusk and tangled forests, of huge pines and stately araucarians, of the reed-like calamite, the tall tree-fern, the sculptured sigillaria. Of this extraordinary age of plants, we have our cheerful remembrancers and witnesses in the flames that roar in our chimneys when we pile up the winter fire, in the brilliant gas that lightens our houses and streets, in the glowing furnaces that smelt our metals and give moving power to our ponderous engines, in the long dusky trains that, with shriek and snort, speed dart-like athwart our landscapes, and in the great cloud-enveloped vessels that darken our friths and rivers, and rush in foam over ocean and sea."

"The conspicuous or characteristic feature of the secondary period," says the same writer, "is not its plants, though it possessed, like the earlier age, herbs and plants. But the grand existences of the age, the existences in which it excelled every other creation, earlier or later, were its huge creeping things, its enormous monsters of the deep, its gigantic birds. It was peculiarly the age of egg-bearing animals, winged and wingless. It was a time of 'whale-like reptiles of the sea, crocodiles rivalling the elephant in height,' and 'numerous birds, some of them of gigantic size.'"

The tertiary period had also its prominent class of existences. Its flora seems to have been no more conspicuous than that of the present time; its reptiles occupy a very subordinate place; but its beasts of the field were by far the most wonderfully developed, both in size and number, that ever appeared upon the earth. Its mammoth and its mastodon, its rhinoceros and its hippopotamus, its enormous dinotherium and colossal megatherium, greatly more than equalled in bulk the hugest mammals of the present time, and vastly exceeded them in number.

Thus, according to the simple narration of Moses, the great races of mammals took the places of their predecessors less elevated in the scale of life, and they, too, were replaced by the horse, the cow, the sheep, in herds, and others more fitted for servants and companions for one who should partake, in his nature, of earth and heaven, whose life should not be finite but eternal.

Dr Mill beautifully says—"The earth had attained her full maturity, and had produced every external thing which was necessary to complete the happiness of the coming race.

"For the touch, there was the gentle warmth of spring, full of the essences which make every nerve titilate with delight at the soothing contact of the morning breeze; for the smell, there was the fragrance exhaled from every pore of the flowers, which, being diffused through the air, and from hence to the intricate net-work of the lungs, make the rising chest expand with pleasure; for the taste, there was the most exquisite relish of fruits, and the vine branch creeping upon the ground, or the young branches, like adventurous children, climbing the tree, brought forth their clusters of grapes, which being crushed in the mouth, the juicy essences stimulate even to the chyle and blood, and prompt every organ to perform its mysterious function; for the hearing, there was the music of singing birds, which, mingling their tunes, made a harmony which penetrated the interior recesses of the brain, and made them vibrate in symphony; for the sight, there was the whole prospect of the visible heaven and earth, whose objects, from the greatest to the least, are so distinctly adorned that the mind is lost in the maze of beauty; thus was the earth finished, and furnished with every thing which could make man happy."

Standing here upon the verge, as it were, of one great epoch in the earth's growth, and looking over the past, regarding it also as the seed-bed for the future, let us pause for a moment to contemplate the beneficence of the Creator, as revealed in the creation around us; for the earth, from her deep foundations, unites with the celestial orbs that roll through boundless space to declare the glory, and show forth the praise, of their common Author and Preserver; His goodness is written on every rock and inscribed upon every leaf and flower; the writing differs —it is sometimes in huge hieroglyphics, like the mountain range, or the troubled sea, and at other times in the small characters which have been inscribed upon the rock by the feet of an insect, but the story is the same; God is here and He is good.

The highest proof, perhaps, that we can give of the beneficence of God is that we feel it in the deep consciousness of our souls; but this feeling, like every other, has its cause, and if we were to analyse the subject we should perceive that the external world is so perfectly adapted for our life, that there is so much in it that tends to make us happy, that, constituted as we are, the sense of the divine presence and the blessedness which springs from it are as natural to us as the appreciation of the beautiful, and the love of the good. In the long course of ages past, through which we seem to have witnessed disorder and confusion—the upheaving of islands and the depression of continents, the destruction of races of animals on the land and in the sea, together with the constantly occurring earthquakes and volcanoes, raising mountain ranges from what had previously been plains or valleys, may have imparted this confused idea, but a moment's reflection shows us that it is only because we have seen so little that we feel thus; for, looking at the world in its totality, everything is complete there, and that which first offended the ear as discord, when we heard but one note, is, when the whole sound is brought out, nothing but the harmony of universal nature.

Look upon that huge pile of rocks which has been pushed through the overlying strata, and the peaks of which are now heaped one upon another, as though some giants had intended them as stepping stones to scale the heavens. They have broken the monotony of the plain, and, standing out in bold relief before the setting sun, impart a beauty and grandeur to the whole country; another glance at those huge bosses of granite shows that they have no sooner been brought into contact with the atmospheric air than they begin to decompose and fret away; but see what becomes of those particles which are thus disengaged from the original mass; that cloud which is hanging over the mountain is about to discharge its watery load upon it, and will wash the small particles into the plain, where, mingling with other atoms like themselves, they will form a soil; in a short time that soil will be full of plants; trees, shrubs, and flowers will hide the nakedness of the rocks, and give the whole richness and beauty.

Many generations of those plants having grown and perished, the soil becomes rich, and man now takes possession of it, and in the rich soil plants his corn and vine, and there, upon the sides of that hill, feeds his flock and rears his family; but the whole provision for his sustenance had been provided for him by nature in anticipation of his coming, and the hard rock had been decomposed that his garden might have the advantage of a fruitful soil, without which man and the higher animals could not have existed.

Nor is this the only beneficent result which has accrued to the world from the breaking of the earth's crust by volcanic force. Let us climb that mountain cone, and having reached its summit, what glorious views present themselves on every side; here the deep wooded valleys and fertile plains stretch out as far as the eye can see, and here and there the towns and villages are dotted out like white spots, the curling smoke rises like incense from every happy hearth, whilst the spire of the church, towering above the surrounding buildings, points its head heavenwards. This is not only a noble and beautiful panorama, but it is full of human interest; here noble deeds of heroism have been done, which no poet has ever sung, and no historian will ever record; in every cottage there are hearts beating with the deepest affection, and stirred by all that gives impulse to man. Gay bridal parties have gone in and funeral trains have come out of every house; there has been joy and gladness, sorrow and sighing, smiles and tears in every smoky crib; every travelled path is written over with the story of human affections and the aspirations of true and generous hearts—how beautiful is the scene, how wonderful is man! But turn your eyes in another direction, and a lake is held between the mountains, glittering like molten silver in the rays of the sun; whilst, far away in the distance, another mountain raises its head so high that it is capped with everlasting snow; whilst, in another direction, the ocean stretches out almost without bound, the free highway of commerce for the civilized world; look upon all this, and you will feel with me that God is good.

And if the present constitution of our world displays so evident marks of beauty and benevolent design, now that it is inhabited by an assemblage of depraved intelligences, and its physical aspect deformed in consequence of the "wickedness of man," what transporting beauties and sublimities must it have presented when it appeared fresh from the hand of its Almighty Maker, and when all things were pronounced by Him to be very *good!* After a deluge of waters has swept away many of its primeval beauties, and has broken and deranged even its subterraneous strata, this terrestial world still presents to the eye a striking scene of beauty, order, and beneficence. But we have the strongest reason to believe that before sin had disfigured the aspect of this lower world, all was "beauty to the eye and music to the ear," that "immortality breathed in the winds, flowed in the rivers," and exhaled from every plant and flower. No storms disturbed the tranquility of nature, nor created the least alarm in the breasts of its holy inhabitants. No earthquakes shook the ground nor rent the foundations of nature. No volcanoes vomited their rivers of lava, nor overwhelmed the plains with deluges of fire. No barren deserts of heath and sand disfigured the rich landscape of the world; no tempests nor hurricanes tossed the oceans, nor scorching heats nor piercing colds, nor pestilence nor disease, annoyed the human frame. In the paradisaical state of the world, we may reasonably suppose that all the elements of nature contributed directly to the pleasure and enjoyment of man, and of the other tribes of animated nature; and that they were not subjected, as they now are, to the operation of those natural agents which so frequently spread destruction and ruin among the abodes of men. To suppose the contrary to have happened would be inconsistent with the state of pure and happy intelligences and with the benignity of the Creator, and would imply that God was either unwilling or unable to remove such physical evils. And, therefore, if in the existing constitution of things, the harmony of nature is occasionally disturbed and its beauty defaced by earthquakes, storms, and tempests, we must remember that the inhabitants of the earth are now a depraved race of mortals, no longer adorned with primeval purity and innocence; and that the physical economy of our globe has undergone a certain derangement, corresponding to the *moral state* of its present occupants. But since this earth, even in its present state of degradation and derangement, presents to the view of every beholder so many objects of beauty and magnificence, and so numerous traces of Divine beneficence, we may reasonably conclude that scenes of Divine wisdom and goodness, far more glorious and transporting, must have been displayed in the Pre-Adamite world, and exist in those worlds where moral evil has never shed its malign influence, and where the inhabitants—superior to disease and death—bask for ever in the regions of immortality.

CHAPTER XV.

26 ¶ And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

27 So God created man in his *own* image, in the image of God created he him: male and female created he them.

28 And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

HITHERTO we have contemplated the great scheme of creation in matter destitute of life, in matter, such as vegetables, with life, but possessing no sensation, and in organisms, such as animals, with life, sensation, and knowledge, be it called instinct or any other term.

We have marked each object in creation exactly fitted for its time and circumstances, but each succeeding creation advancing in form and beauty. We are now about to contemplate a being higher far in position, immensely exalted beyond mere sensation, mere animal life and instinct, endowed with rational existence, and with immortal life. So constituted, this being is capable of reading the history of the past, tracing its Author and his own in the work, of marking admiringly the display of His perfections, and of yielding to Him adoration and homage.

Hitherto we have seen that life was not made for matter, but matter for life.

Wherever its atoms are found, there life is, however minute, to enjoy God's bounty.

The telescope brings into view worlds numerous as the drops of water in the ocean; the microscope, a world in every drop of water.

Now, we are about to contemplate life capable of studying His works, recognising His glory, and blessing and praising His holy name.

One can hardly approach this subject but in awful reverence, deepened by the solemn announcement by which it is introduced in the Scriptures.

"Let us make man." What an overwhelming thought that we, the creatures of a passing hour, the infinitesimal specks of dust-formed beings, should individually be admitted, as it were, into the councils of the glorious persons of the Trinity, held in a past eternity, regarding the sending of immortal undying souls to dwell in corporeal forms upon this other speck among worlds! Truly the thought is awful, the condescension of Jehovah immeasurable! No such announcement is made before the previous creations were begun, because none were of such high import. Mind transcends matter to an infinitely greater distance than that which animal life reaches beyond material objects.

In entering upon an examination of this wonderful work, we feel confronted by a mass of difficulties, principally arising from early education, and convictions which have not only been trained to run uniformly in one channel, but confined there by the labours of commentators and writers upon the same subject. Uniformly almost the same beaten track has been pursued, under the guidance of the same directions, and by the same lights.

Earnestly and most positively insisting on our complete adherence to Gospel truths, would we humbly seek to offer our opinions to clear up the doubts raised in most minds in the passage thus given by Moses, and to solve the inquiry of the present day, as regards the existence of Pre-Adamite races of immortal beings.

It is undoubtedly a hard task to unlearn what have been firmly held as beliefs, however indistinct, during our past lives; but it is to be hoped that, in these days of calm examination of ideas, there are many who, still holding fast the great truths of Salvation, will not hesitate deliberately to follow the proofs to be submitted, and, it may be, go far beyond the present very humble endeavours to illustrate this most interesting and important point in the Mosaic account of creation.

It has already been most admirably treated by the talented authoress of the work "Pre-Adamite Man." With no wish to rival her truly interesting production, the subject is here discussed as falling within the scope of this volume, and some of her ideas and arguments are thus necessarily reproduced in a condensed form; but, it is hoped, without lowering the interest which attaches to the work itself.

In the views thus submitted, the most jealous for the faith need fear no subversive doctrine insidiously concealed. Truths are appealed to reason; and truth, however opposed, can neither be checked nor extinguished. "When compressed, it re-acts the more. It crushes where it cannot expand. It burns where it cannot shine. Human when originally divulged, it becomes divine when established. At first the breath of a sage, at last it is the edict of a God."

As formerly noticed, the division of the sacred writings into chapters and verses has, in many instances, been made without due regard to the subject, either in relation to the several points under treatment, or in keeping separate, distinct, and different subjects. The first and second chapter of Genesis present a striking illustration of this ill-arranged division. What has not been done for us, we have done in a former portion of this work. As it stands in our Bibles, the reader becomes confused, and apparently has presented to his mind two accounts of the same work. We maintain this is not the case; but that, instead, the narrative gives accounts of two separate and totally distinct creations; in fact, that Moses, in the first chapter and three first verses of the second, describes a Pre-Adamic creation, including a Pre-Adamic race of beings.

The transactions preparatory to and the creation of Adam commence at the fourth verse of chapter ii.—"These *are* the generations of the heavens and of the earth when they were created, in the day that the Lord God made the earth and the heavens." Passing over the expression day, as regards time, and its evident inapplicability to the days supposed natural days, the writer refers to the description given in the foregoing chapter, which he sums up "These (the foregoing) *are* the generations," etc.; and then follows the narration of a state of things very different indeed from the former glorious condition of the earth; in fact, a state of desolation into which the world had lapsed from some cause or causes not explained by Moses, but which we shall hope hereafter to elucidate.

He then goes on to inform us of a new creation—in fact, an eight-day creation—and of the advent of a new being, Adam; but a being different to some extent from his predecessors, ushered into the world under entirely different circumstances, and with different training, to occupy, at last, a different eternal position.

The words "These *are* the generations of the heavens and of the earth" are a clear line of demarcation between the former and latter events, and are so used in a similar sense in other portions of the Scriptures—*Genesis* v., 1, *Genesis* xxv., 12 and 19, and *Matthew* i., 1—in reference to our Lord.

That a perfect analogy exists between the first and second creations of beings—between the Pre-Adamic race, and the Adamic race—is undoubted, and will be made abundantly manifest.

That a similar analogy will be exhibited, and that there will be yet another creation, we are taught in distinct terms by the Scriptures, at the resurrection—that creation being allied to the Adamic race by mysterious ties of the closest sympathy. That profound thinker and elegant writer, Hugh Miller, thus expresses himself in relation to this last day creation:—"From the revealed record, we learn that the dynasty of man, in the mixed state and character, is not the final one, but that there is to be yet another creation, or more properly *re*-creation, known theologically as the resurrection, which shall be connected in its physical components by bonds of mysterious paternity with the dynasty which now reigns, and be bound to it mentally by the chain of identity, conscious and actual; but which, in all that constitutes superiority, shall be as vastly its superior as the dynasty of responsible man is superior to even the lowest of the preliminary dynasties. We are further taught that, at the commencement of this last of the dynasties, there will be a re-creation of not only elevated, but also of degraded, beings—a re-creation of the *lost*. We are taught yet farther that, though the present dynasty be that of a lapsed race, which, at their first introduction, were placed on higher ground than that on which they now stand, and sank by their own act, it was yet part of the original design from the beginning of all things, that they should occupy the existing platform; and that redemption is thus no after-thought rendered necessary by the fall, but, on the contrary, part of a general scheme, for which provision has been made from the beginning; so that the Divine man, through whom the work of restoration has been effected, was in reality, in reference to the purposes of the Eternal, what He is designated in the remarkable text—'*The Lamb slain from the foundation of the world.*' Slain from the foundation of the world! Could the assertors of the Stony science ask for language more express? By piecing the two records together—that revealed in Scripture, and that revealed in the rocks—records which, however widely geologists may mistake the one, or commentators misunderstand the other, have emanated from the same great author, we learn that, in slow and solemn majesty, has period succeeded period, each in succession ushering in a higher and yet higher scene of existence—that fish, reptiles, mammiferous quadrupeds have reigned in turn—that responsible man, 'made in the image of God,' and with dominion over all creatures, ultimately entered into a world ripened for his reception; but farther, that this passing scene, in which he forms the prominent figure, is not the final one in the long series, but merely the last of the *preliminary* scenes; and that that period, to which the bygone ages—incalculable in amount with all their well-proportioned gradations of being—form the imposing vestibule, shall have perfection for its occupant, and eternity for its duration."

The creations of the Pre-Adamic and Adamic races are, therefore, taken out of the category of singular and unlike events, with lengthened intervening periods from their entry into the world to the consummation of their earthly probation.

Created alike, their natures were different from the brutes, both were sinless, both alike not subject to death —for death, the wages of sin, is only natural to fallen humanity. But they were unlike in many respects.

It is an evident fact that there exist gradations of intellect through all the sentient orders of nature, beginning with the lowliest mollusc and passing upwards to the aquatic and insect tribes, and again upwards, through the mammals, until its culmination in man, the apex of the pyramid.

Even among mankind prevails wonderful diversity and capacity of intellect, arising from original mental constitution, bodily conformation, conditions of birth, and educational culture.

This being so, not only would it be rash to insist that any one human being had ever reached the summit of intellectual perfection, but that there exist no orders yet higher far in intellectuality than man, as far transcending him in abstraction, conception, reason, and other God-like possessions, as man in mental qualifications transcends the lower animals.

That such beings do actually exist, the Scriptures assure us—beings possessed of powers and perfections incomparably superior to man, who perform important offices under the government of the Almighty, inhabitants of other localities than earth. But not only are they thus endowed mentally and incomprehensibly far beyond man, but these powers are enclosed in bodies also incomprehensibly superior to those of mankind in ability for motion and other qualifications, of which the gross and material frame in which he is clothed is incapable. That, mentally and bodily, they are allied to man, and that some unknown and inconceivable connection closely exists between the races, are facts which the Scriptures, in the narrated transactions of these Angelic beings with the human race, abundantly exhibit.

In all probability, the analogy as to body is similar to that which we are taught the resurrection body will sustain to that which, at death, is laid in the grave.

What the particular characteristics of Angelic corporeity are, we do not now enter into; but that they do possess bodies, and are deeply interested in mankind, are facts easily substantiated by proofs, a few of which are here given.

While Daniel was engaged in prayer, the angel Gabriel, being commanded to fly swiftly, approached him before he had made an end of his supplication. What is the velocity of light compared with the amazing power of motion possessed by the angels! But Gabriel touched Daniel, and set him "on his feet upright" from his former abased position "on his face" on the ground—chap. viii., 18. Here is the evidence of one body acting upon another. Gabriel farther spake to, and was heard by, Daniel; and, as hearing is the result of sound acting through the air on the organs of hearing, the speaker must have had, and employed, the organs of speech. Again, in a subsequent interview, Daniel recognised Gabriel—a proof of the individuality of the bodies of Angels. Chap. ix., 21—"Yea, whiles I *was* speaking in prayer, even the man Gabriel, whom I had seen in the vision at the beginning (related in the preceding chapter), being caused to fly swiftly, touched me about the time of the evening oblation."

In passing, attention may be directed to the expression used by Daniel, "the man Gabriel," which is exactly that used by Moses in repeating the decisions of the councils of the Godhead, "Let us make man." The term angels, used by us to express the hosts of Spirits inhabiting heaven, in its proper and original sense, signifies messengers sent by the Almighty to proclaim His will to man; and, as such, is not only applied to heavenly messengers, but to the ministers of churches on earth; for instance, in Revelation, "Unto the angel of the Church of Ephesus write," etc. In common language, however, the angels are understood to mean the heavenly hosts.

But to return, an angel "rolled away the stone from the door of the sepulchre" at our Saviour's resurrection, exhibiting power over inanimate nature. An angel slew, in one night, 185,000 of the Assyrian army, exhibiting an intimate acquaintance with the springs of life. An angel slew the firstborn of the Egyptians, and spared the children of the Israelites, exhibiting a knowledge of the relations, and of the ages and characters which distinguish mankind.

In the book of Revelation, they are represented as being full of eyes, that is, "endowed with all sense, all intellect, all consciousness, turning their attention every way, beholding at once all things within the reach of their understandings, and discerning them with the utmost clearness of conception."

They experience no decay in their powers, but are endowed with unfading youth. The angels who appeared to Mary at the tomb of our risen Saviour, appeared as young men, and yet they had been created many thousands of years.

Many speculations have been entertained regarding the creation of angels; and, among others, that they preceded the first day of creation. This opinion has been mainly founded on that passage of Job where it is said (chap. xxxviii.) :—

1 Then the Lord answered Job out of the whirlwind, and said,

2 Who *is* this that darkeneth counsel by words without knowledge?

3 Gird up now thy loins like a man; for I will demand of thee, and answer thou me?

4 Where wast thou when I laid the foundations of the earth? declare, if thou hast understanding.

5 Who hath laid the measures thereof, if thou knowest? or who hath stretched the line upon it?

6 Whereupon are the foundations thereof fastened? or who laid the corner stone thereof;

7 When the morning stars sang together, and all the sons of God shouted for joy?

On the other hand, we conceive that it is equally, if not more strongly, applicable to that period in creation when —earth having been brought out of nothing, its materials arranged in hill and valley, the firmament appointed, the waters above separated from the waters below, the ocean confined within its limited bounds, the work done, men created, His children established upon earth—the first accents of praise burst from their astonished hearts in love and adoration to their Father and God.

We, therefore, with all humility, and coinciding in opinion with the authoress of "Pre-Adamite Man," submit that the creation of man, narrated in the first chapter of Genesis, is that of the Pre-Adamite races, and that these were the angels. Immediately on their entry into existence, awakened to consciousness of what they were, and how and from whose hands they had originated, delighted with their home so beautiful, so fair, so bright, alive to the exquisite sensations communicated to their then sinless existence by all that they heard, and saw, and felt surrounding them, they, "the morning stars" of created beings, sang together in praise of the Divine wisdom and power there displayed, these sons of God shouted for joy.

The appellation, sons of God, given to the angels, is particularly to be noted. They are never called sons of Jehovah; those only are so denominated who receive and are the vehicles of His redeeming mercy, namely, mankind.

The term Elohim, translated God, designates the Divine

Being as the fullness and source of life, of power, of blessedness, of glory, and majesty. The term, Jehovah, describes him as merciful and gracious, as the Saviour and Redeemer who humbled Himself in order to deliver fallen man from his ruin and draw him upwards. The sons of Elohim are, therefore, those in whom shine forth, and who are the media of, His power and glory, namely, the angels.

The idea of a Pre-Adamite creation is not new. It was entertained by the fathers of the Christian church, who assert that mankind was created to fill up the gap left by the fall of the angels; while many of them thought that the race was to increase until the number of the redeemed should equal that of the fallen angels. It has also been argued, by Kurtz and others, that the state of the earth, desolate and void—described *Gen.* i., 2—was connected with the fall of those angels who, according to Jude, "kept not their first estate." On the other hand, we submit that, by the light thrown upon the point by Geology, the creation of the angelic hosts is to be placed amid the scenes of magnificence and fullness of life of the early Tertiary Geological period. *That* origin and condition is described in the passage in Genesis under our consideration, and the state of sterility of the world at Adam's creation—described in *Gen.* ii., 4—resulted from their fall, and is an evidence of God's displeasure less complete in consequences, but similar and analogous to the condition of the earth after Adam's transgression and fall.

In the passage quoted from Job, we therefore maintain the writer did not intend to describe, in strict order of time, the creative process; and, from the contrast between the first and second created intelligent beings, arises the point to the query, "Where wast *thou* when I laid the foundations of the earth?"

Still farther confirmatory of this view see the eighth chapter of Proverbs, where the Son of God, under the name of Wisdom, is introduced as giving a history of his experience of those eternal ages in which he dwelt in the bosom of the Father, down through the successive periods that rolled on till the age of man.

Proverbs viii., 22 The Lord possessed me in the beginning of his way, before his works of old.

23 I was set up from everlasting, from the beginning, or ever the earth was.

24 When *there were* no depths, I was brought forth; when *there were* no fountains abounding with water.

25 Before the mountains were settled, before the hills was I brought forth:

26 While as yet he had not made the earth, nor the fields, nor the highest part of the dust of the world.

27 When he prepared the heavens, I *was* there: when he set a compass upon the face of the depth:

28 When he established the clouds above: when he strengthened the fountains of the deep:

29 When he gave to the sea his decree, that the waters should not pass his commandment: when he appointed the foundations of the earth:

30 Then I was by him, *as* one brought up *with him:* and I was daily *his* delight, rejoicing always before him;

31 Rejoicing in the habitable part of his earth; and my delights *were* with the sons of men.

"And who could those sons of men be but the same creatures as the sons of men mentioned at the close of the latter passage? And who, again, those sons of men?

Not surely our first parents; for, though human, this expression 'sons of men' could not, by any stretch of meaning, be applied to them. Not our family in its fallen state; for the complacent delights of Christ were certainly not with *fallen* humanity. We are thus driven to the conclusion that 'the sons of men,' occupying 'the habitable parts of the earth,' and the objects of ineffable love to the eternal Son of God, could be none other than pure, unfallen members of a Pre-Adamite race."

Much of the misapprehension which has arisen on this subject, it is suspected, is to be attributed to the interpretation which has been given to the word Adam. We have been told, and have unhesitatingly clung to the opinion that Adam means *red earth*, because the name is closely allied to, and derived from, the Hebrew word translated blood; but Hebrew scholars are not agreed on the point, but are rather inclined, on etymological grounds, to consider it a generic term, applicable to both the Pre-Adamite and Adamite man, expressing "the being who has a likeness." Moses thus applies it (*Genesis* v., 2)—"In the day that God created man, in the likeness of God made he him: male and female created he them; and called their name Adam"—a likeness specially true of the man spoken of (chap. i., 27, and in chap. ii., 7), created in the likeness of God.

It is important to consider what is meant by "in the likeness of God." It cannot be corporeally, for God is not a body; and many wonderful animal bodies had been previously created, without any council or similar resolve of the Holy Trinity, of which we have any information.

But God is a Spirit; without material substance the creation, therefore, is a creation of mind, and the likeness exists in—I. Man's soul being also a Spirit. "The dust returns to earth as it was: and the *Spirit* returns to God who gave it," *Eccles.* xii., 7.

II. The likeness also consists in immortality. Had the Adamic race not sinned, man had never died. Death is not a mere dissolution of soul and body, but includes all the misery and suffering which precede it in this world, and follow, unless averted, in the world to come; it refers more to the manner of going, than the act, and is unnatural to an immortal being. It is true, death prevailed in the world before Adam's transgression; but his apostacy, however some would hesitate to regard it as foreknown, must have been known to Him who is the Omniscient; and, therefore, in order that His ends might be accomplished, God adapted all things so that they might be in harmony with man's condition. Man, as a free agent, so acted as to introduce the seeds of death into his system. There is, therefore, a connection between sin and death; and, as the Saviour's redemption is applied to all who fell asleep believing on Him before he came, equally as to those who have believed since he came and was offered up the sacrifice for the propitiation of their sins, so man's transgression exercised a retrospective, as well as prospective, effect on animal life.

With the Almighty, the past and future are equally present.

It is true, we have several interesting changes from mortality to immortality without dying, for instance, the translation of Enoch and Elijah; but there are more numerous instances of change still to be effected in the closing scene of the history of the earth. "Behold I show you a mystery. We shall not all sleep, but we shall all be changed in a moment, in the twinkling of an eye, at the last trump; for the trumpet shall sound, and the dead shall be raised incorruptible, and we shall be changed."

Mortal and immortal natures could not exist in the same natural constitution for ever, nor could a condition, adapted to undying creatures, be changed into a state of decay and death without a new creation. Hence the distinction between, and separate creation of, mortality and immortality.

III. There exists a farther likeness in Spiritual understanding.

Plants live, animals live and think, but they have not the knowledge of God; man alone is, when regenerated, "renewed in knowledge after the image of Him who created him."

IV. The likeness exists in holiness, in that state of purity of mind, loving and being loved, "as God so loved us," for "God is love."

V. There is another likeness. Dominion over the creatures and in the world. "Let us make man in our image, . . . and let them have dominion."

VI. Another likeness is in perfect happiness. Had man never sinned, he must have enjoyed happiness unbounded.

The creation of intelligent beings is, as has been remarked, heralded by the decision of the solemn conference of the Trinity. No such resolve is promulgated in reference to any previous creation of matter, animate or inanimate; but mind infinitely superior to matter or the lower animals—an emanation from the Deity—is the object contemplated.

Had angels been *previously* created, in them intelligence of the highest order would have existed, and no new and astonishing feature would thus have been introduced in man, made after God's likeness, or received the expression of the Great Creator's approbation as "very good."

A comparison of the two narratives will show that, between the Pre-Adamite race and Adam, there exist several distinguishing and remarkable differences.

The manner of creation. The Pre-Adamite race is at once ushered into being, created out of nothing by the word of God.

They at once start into active life in numbers, male and female, in obedience to the command "be fruitful and multiply," soon overspreading the earth like the creations of animal life.

This conclusion is arrived at from the fact that the same word is applied to men which was used in the command to the waters to bring forth, or *swarm* forth abundantly.

They had, therefore, no federal head.

With the Pre-Adamite race, the Almighty was Elohim, but not Jehovah. He entered into no covenant with them. For their redemption, the Saviour "took not on Him the nature of angels." As individuals they fell, as individuals they were punished.

Adam is formed out of the dust of the earth (the Hebrew word expresses moulding or fashioning), through his nostrils is breathed the breath of life, his frame is animated, and man becomes a living soul.

Adam was introduced to the world alone, and until the creation of the woman, no difference of sex existed. Like the children of the resurrection—and herein lies another analogy between the Adamic and resurrection creations—Adam was without sex. Considered as an individual, the man was indeed a man—an individual unit from whom the woman was to proceed, and all the human race spring.

Thus, both sexes were to be derived from the man, and "all nations of men that dwell on all the face of the earth should be of one blood."

Adam was thus the federal head of all mankind.

On the fall of Adam, death—temporal and eternal—was the punishment attaching to him and all his race; so, from the foundation of the world, Christ, the federal representative of the Adamic race, was given to procure their salvation.

To Adam, and as illustrative of His dealings with him and his race, the Lord becomes known by the most sacred name of Jehovah.

The Pre-Adamite was at once invested with ruling power and dominion over the earth and its animal inhabitants—of spreading abroad his race and subduing all that it contained to his control and for his use.

Ushered into life amid all the beauties of nature, supplied at will with food and fruits for the satisfaction of his requirements, neither care nor toil was his lot.

Adam, created from the dust, received lessons of humility and dependence, and of God's sovereignty, which his predecessors, at least a portion of them, in their pride had forgotten or set at naught. He opened his eyes amid all the sterility of nature described in chap. ii., 5, 6—consequences of the fall of the Pre-Adamite races from their "first estate." From such circumstances, perhaps, after feeling his wants, acknowledging his dependence, and crying unto God for relief, he was placed in the garden provided and planted for him by his Creator, or, mayhap, preserved in the pristine beauty of Pre-Adamite times for this end from the ruin which overtook all the other parts of the earth. Here, in Eden, he was to spend his brief season of innocence and joy, *but not in idleness;* his work was to "dress it and keep it."

His predecessor had the whole world from pole to pole whereon to roam, with unreserved gift of food, unrestricted liberties clogged by no conditions. Adam had only the garden of Eden for his empire, watered by a cool and refreshing river, beautiful beyond our conception, fertile beyond comparison, and where, under his own eye, he could mark the instantaneous production, or gradual growth, of the new vegetation supplied and suited to his wants. He neither coveted, nor seems to have wished, a larger kingdom;—mayhap, the outer world in its sterility was but little fitted for his occupation. His food he received by special grant, limited to the garden, and under certain restrictions. One special reservation was made "Of the tree of the knowledge of good and evil."

The dealings of God with him were lessons of obedience, submission, and self-control. These performed, his lot and home were indeed pleasant, he could enjoy the bounties so abundantly provided, praise and glorify his Creator with a grateful heart, and, above all, hold with Him holy communion.

Let us still farther examine the account given of the Adamic creation in order, more pointedly, to mark the distinction between it and the Pre-Adamite.

The creation of the six days formerly narrated had produced a vast array of animals, but all these had passed away before Adam was introduced into the world. This fact, Geology and the Bible reveal. The types, buried in the rocks which we have examined, were not destined to continue, they were not created for *man;* but these types were to be repeated, generally in a finer mould and smaller forms, in the new creation produced for his use, detailed ver. 18, chap. ii.—"And the Lord God said, *It is* not good that the man should be alone; I will make him an help meet for him. And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought *them* unto Adam to see what he would call them: and whatsoever Adam called every living creature, that *was* the name thereof. And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field; but for Adam there was not found an help meet for him."

It is clear from several intimations that the creatures here narrated are not the creatures of the preceding six creative days; Adam was alone upon the earth, alone in "Eden, the garden of God," where the work was performed. The present fowls spring from the earth, the former from the waters, and there is no mention of fish or creeping things. Whether their existence had been continued through the primitive period through which the earth had passed prior to Adam's creation, or whether there being no sea near Eden in which they could exist and come under Adam's notice, is a question of less importance. His relations lay with the nobler creatures of the land, and for a special purpose were they brought before him.

With what thoughts must our first parent have beheld the creatures in all their variety of form and beauteous adaptation for their ends, marshalled and passed in review before him. Possessed of reason, he could not fail to be struck by his own individuality and loneliness. The want of companionship would force itself upon his mind when he beheld the sexual differences and companionship of the nobler animals. By his intelligence, he marked the characteristics of each, and named them; but, anxiously as he might gaze, "no help meet for *him*" greeted his search.

The beauties of his home, fruits, flowers, birds of splendid plumage, animals marvellous in grace and strength, air, earth, sky, or river, filled not up the void, nor could it be supplied until he, a free and intelligent being, desired it.

Conscious of a nature far advanced beyond aught exhibited to him, finding no sympathy in them with his affections or aspirations, he could hold no mental intercourse with them to constitute companionship.

The Almighty, however, knew all, and pitying his loneliness, yet another, a new creation, took place.

In the creation of the sixth day the female was created out of nothing, simultaneously with the male; but in the making of Eve a special difference was observable, the female derived her being, both body and life, *from* the male.

"The Lord God caused a deep sleep to fall upon Adam, and he slept: and he took one of his ribs, and closed up the flesh instead thereof; and the rib, which the Lord God had taken from man, made (builded) he a woman, and brought her unto the man."

Thus was the help meet provided for man.

Who can conceive the feelings with which Adam, opening his eyes from that deep sleep, first beheld this desire of his heart in all her loveliness,—this part of himself, like himself, but of less massive mould,—inclining her ear to catch his words, speaking eye to eye,—with what delight he must have received, from their Creator's hands, this help meet brought unto him? How his heart must have been lifted up in gratitude to the Giver, how he must have felt that *now* he had obtained a companion with whom to talk of Him, praise and glorify Him, as evidenced by his exclamation, "This *is* now bone of my bones, and flesh of my flesh: she shall be called Woman, because she was taken out of Man."

"But though woman was thus to some extent one with man, there was a distinctness in the conditions of her creation that marked her personal identity, and shadowed forth her future circumstances. Her introduction to the world was not like Adam's, amid the rugged ruins of an ancient empire; she was not disciplined like him; she had not felt his need, nor, like him, learned by experience to depend directly on the affluent hand of God for the supply of every want so soon as it arose.

"She had not seen Eden planted or peopled by the Creator for her; but when Eve opened her eyes on the light of day, it was among the bowers of paradise, surrounded by the blessings which each day of Adam's life had hitherto been accumulating, and which were now so ample as to be esteemed complete. In her husband she saw her stay and her defence; and while it was the grand first lesson of God to Adam, that he should rely on Himself directly and solely, to Eve He pointed out an earthly head, under Himself indeed but over her, in whom she might repose her confidence, and to whom she might apply in her necessities, at once her guardian, her teacher, her provider, and her husband."

The remaining portion of the Divine revelation introduces a subject no less grand, and to us more important, than the former.

We, however, return to the consideration of the Pre-Adamic creation, remarking, and we hope, having proved the days spoken of in the Bible as ages of great duration, the sixth day was occupied by the creation of animals, and of man.

It is unlikely that the greater portion of this age or day was consumed in the creation of the inferior orders, while man, the nobler, was brought into existence at its close.

Rather let us, as there is nothing opposed to the opinion, suppose that man—Pre-Adamic man—was created about the middle of the era, instead of immediately antecedent to the Sabbath day which succeeded. In an epitome of the whole narrative which had been given of the creation, Moses concludes :—

> *Gen.* ii., 1 Thus the heavens and the earth were finished, and all the host of them.

He then proceeds to relate the rest which succeeded these acts, and the institution of the Sabbath :—

> *Verse* 2 And on the seventh day God ended his work which he had made; and he rested on the seventh day from all his work which he had made.
>
> 3 And God blessed the seventh day, and sanctified it: because that in it he had rested from all his work which God created and made.

The Sabbath was thus an age rolling on in holy calm, superlatively blessed by God's approbation of all His works, for he pronounced all "very good." No sin, no sorrow, no death, marred its brightness. In meeting with Him whose delight was with them under the vast arch of heaven, one great temple in which His intelligent creatures with one accord praised and glorified the Lord of the Sabbath, their lot must indeed have been in heavenly places. The seventh day of rest, or Sabbath, therefore, is that age or period in the world's history which succeeded the creation of the Pre-Adamic race, and during which they "kept their first estate" in innocence and holiness.

In considering the subject, this Sabbatic period has proved of considerable difficulty; but, in the view presented, we can see none.

If, however, it be supposed that the Sabbath has yet to run, or has been running since the creation of Adam, there is much difficulty of explanation.

Adam, whose age in years we are told, could not have lived *an age and a half* in Eden ere his years began to be enumerated, and it is to be hoped that the arguments produced for the days being considered ages have so commended themselves to the reason, that the conclusion would not lightly be abandoned.

The Sabbath cannot be yet to run, because our Sabbath is instituted on what *has been* established.

That the Sabbath is yet running its course, and will not be ended until the conclusion of time on earth, is an idea which a little consideration of what the Sabbath is and represents will set aside.

The Sabbath is a period of time blessed and sanctified by the Almighty, and emblematic of that eternal rest and felicity in heaven where the spirits of just men are made perfect, and the saints are delivered from sin and sorrow, from the guilt and power of sin, and even from the very being of sin. Blessed in heaven with complete conformity to the will of God, and uninterrupted communion with Him, their happiness will be eternal.

Has this been the state of the earth since the creation of Adam?

Let us take a momentary glance backward at the history of the moral world. Nothing almost meets the eye more forcibly than pictures—and these painted in no faint colours—of persecution, injustice, rapine, murder, wars, and desolation.

Clashing opinions resulting in the most horrid cruelties by the strong against the weak;—nation dashing against nation from the mere lust of territorial aggrandizement, or peoples rebelling against the tyrannical oppressions of rulers;—nations warring for an abstract idea—some imaginary and theoretical necessity, such as the balance of power; empire surging against and hating empire for some imaginary slight;—superstition, idolatry, and—in the name of religion—fanaticism immolating on the altars of human passion and brutal ignorance millions of victims;—heroism prostituting its title, and, in the persons of ambitious villains, cruelly drenching the earth with human gore, burning cities and villages, turning fruitful fields into deserts, levelling temples and palaces, setting up new thrones on the ruins of others, and from these distributing mock justice, and committing fresh robberies, spoliations, and murders;—Alexander burning to be esteemed a conqueror and a hero, madly offering up hecatombs of unoffending people to his ambition;—Xerxes fired with pride, leading forward three millions of beings to be slaughtered by the Greeks;—Alaric, at the head of savage hordes, destroying the triumphs of art and civilization out of mere wantonness, and deluging with blood the streets of Rome from sheer barbarian cruelty;—Tamerlane overturning Persia, India, and Asia, and gratifying his tastes by pounding thousands of people in large mortars, and building their remains, with bricks and mortar, into a wall;—millions of mad Crusaders overflowing the eastern parts of Europe like a torrent, massacring the inhabitants of Western Asia, and leaving their own bones to whiten the plains and fields of Palestine—all for an idea, and an insane desire to hasten the decrees of Providence;—Goths and Vandals, Greeks, Romans, Asiatics, and European nations butchering and slaughtering, sparing neither age nor sex;—churches and creeds persecuting and harassing to death members of other churches and creeds, by way of seeking the favour of the one God and Maker of all;—members of the same nation retarding its progress for generations by all the horrors of civil war;—individual members of the same family outraging each others feelings, reducing by chicanery or legalized persecution one or another to penury and distress. Such are a few of the pictures exhibited to us by a historical retrospect.

"Were we to take a survey of the moral world as it now stands, a similar prospect would be presented to our view. Though the shades of depravity with which it is compassed are not so thick and dark, nor its commotions so numerous and violent as in ancient times, yet the aspect of every nation under heaven presents, to our view, features which are directly opposite to every thing we should expect to contemplate in a world of systematic order, harmony, and love. In Asia, five hundred millions of inhabitants immersed in vice, ignorance, and idolatry, groan under the lash of tyrannical despots; in Persia and Turkey, similar scenes are exhibited; in Africa, human nature sinks into the lowest depths of degradation; in America, deeds are performed in the name of Religion in which the fiends rejoice, selfishness and bombast are rampant; in Europe, the Romish Church thundering its anathemas against all who are opposed to its interests; the various sectaries of Protestants engaged in mutual recrimination, and contentions; and the Princes and Sovereigns on the Continent all combined to oppose the progress of liberty, and to prevent the improvement of the human race.

"If we come nearer home, what do we behold? A mixed scene of bustling and confusion, in which vice and malevolence are most conspicuous and most frequently triumphant. When we contemplate the present aspect of society, and consider the prominent dispositions and principles which actuate the majority of mankind, the boundless, avaricious desires which prevail, the base and deceitful means by which they are frequently gratifed, the unnatural contentions which arise between husbands and wives, fathers and children, brothers and sisters, the jealousies which subsist between those of the same profession or employment, the bitterness and malice with which lawsuits are commenced and prosecuted, the malevolence and caballing which attend electioneering contests, the brawling, fighting, and altercations which so frequently occur in our streets, alehouses and taverns, and the thefts, robberies, and murders which are daily committed; when we contemplate the haughtiness and oppression of the great and powerful, and the insubordination of the lower ranks of society, when we see widows and orphans suffering injustice, the virtuous persecuted and oppressed, meritorious characters pining in poverty and indigence, fools, profligates, and tyrants, rioting in wealth and abundance, generous actions unrewarded, crimes unpunished, and the vilest of men raised to stations of dignity and honour, we cannot but admit that the moral world presents a scene of discord and disorder which mar both the sensitive and intellectual enjoyments of mankind."

CHAPTER XVI.

SUCH having been the history of the world, the period, since the creation, cannot be the Sabbatic rest which God blessed and sanctified, and, as remarked, the term therefore can only be applied to that *succeeding* the Pre-Adamitic creation.

"If this be the case," says the Authoress from whom we have already quoted, "again we must ask who was this creature, man? Do we know anything of his history? Have any records survived of his works or destiny? His life protracted over a Mosaic age and half —a period of indefinite length—must have had a story more or less eventful. Does nothing remain to indicate what he was, or how he spent his time, or what was his character? The birds and beasts of these ages, their plants and trees, their flowers and fruits have left distinct traces in every part of the world. Have none survived of man? The geologist answers, none; but his assertion must be taken with much reserve as subject to be modified by discoveries which any day may bring up. There, at least, exists, we must admit, a mystery regarding him which the geologist has not penetrated, and which Scripture, where it touches it at all, very partially unveils. The world, indeed, we know, was at this time a fit habitation for man. Of the general warmth and happy features of that age, discovery has already assured us. Our earth was not as yet deprived altogether of its pristine heat, and the vegetable remains which we find through all regions, even those which are now constantly ice-bound or covered with snow, could only have flourished under a sunny sky. In such a climate, the man of this age must have lived surrounded by a marvellous vegetation, well-suited to his wants, the traces of which assure us in the words of a well-known geologist, that 'Nature presented everywhere, during this period, the most varied and exuberant flora, which included nearly all the vegetable forms of the preceding period, with the addition of numerous others, among which may be mentioned liquid-amber, willow, myrtle, anemone, plum-tree, magnolia, holly, rhododendron, azalia,'" etc., etc.

Miller confirms this view. "Not until we enter on the tertiary periods," he says, "do we find floras, amid which man might have profitably laboured as a dresser of gardens, a tiller of fields, or a keeper of flocks and herbs. Nay, there are whole orders and families of plants of the very first importance to man which do not appear till late even in the tertiary ages. Some degree of doubt must always attach to merely negative evidence; but Agassiz, a geologist whose statements must be received with respect by every student of the science, finds reason to conclude that the order of the rosaceæ—an order more important to the gardener than almost any other, and to which the apple, the pear, the quince, the cherry, the plum, the peach, the apricot, the nectorine, the almond, the raspberry, the strawberry, and the various brambleberries belong, together with all the roses and the potentillas—

was introduced only a short time previous to the appearance of Adam. While the true grasses—a still more important order which, as the corn-bearing plants of the agriculturist, feed at the present time at least two-thirds of the human species, and in their humbler varieties form the staple food of the grazing animals—scarce appear in the fossil state at all; they are peculiarly plants of the human period."

These productions were not confined, at the period of which we are now speaking, to southern climes. In every continent, and in every latitude, the tertiary rocks are found rich with the remains of tropical fruits, and plants, and flowers. Many of the animals of this era also were much better fitted to dwell with man than those of any previous period.

Among various tribes, carnivorous and fierce, we find relics of the sagacious elephant, the docile horse, the ox, the deer, the goat, and the dog, all of which—though their remains show them to have been generally of gigantic mould—might have been the servants of man; while the bee, whose traces have been singularly preserved in amber, may have provided for him the sweet luxury of which it is the maker. Of these, and all that earth contained, he was the appointed master (*Genesis* i., 28). And, doubtless, in those times of innocence he was endowed with the moral power to obtain compliance with his wishes from his submissive servants, either by the rod of authority and force, or by that divinely imparted influence which God attached to his royal office and superior nature. Many were the willing ministers of his desires and necessities. No trappings were needed to restrain their impetuosity, no whip or spur to urge them to duty; and, for a period at least, the most savage races (though nature taught them to prey upon one another) must have been either subjected with loyal compliance to the temperate rule of their sovereign, or easily coerced to obedience.

That man—Pre-Adamitic man—was holy and happy, that the seventh or Sabbath age was to him a period of ineffable joy, spent under the eye of his Maker, and in sweet converse with Him, the total absence of sin and the blessing pronounced on the Sabbath would lead us to conclude. And that, as a sentient being, he must have enjoyed an existence of exquisite satisfaction; his perpetual harvests confined to no latitudes, providing exuberantly all necessary supplies for the sustenance of life, the bright colours that everywhere met his eye, the delicious odours and sweet music that constantly regaled him, ministering to every natural taste of innocent beings, leave no room to doubt.

There would then be no need of elaborate structures, well-built cities, or walls of defence, to protect him from the surly elements or the invasion of enemies. All the conditions of the age speak of tranquillity, abundance, and enjoyment, of harmony and peace.

The enquiry into the existence of a Pre-Adamite race has of late years engaged the attention of philosophers. Earnest and laborious investigations have been employed in the examination of the Stony Record in order, if possible, to detect, along with the fossil remains of Pre-Adamic animals, traces of the existence of man.

Hitherto they have not been found, so as to supply positive and undoubted proof. If the assumption were correct, it is to be supposed that, among the relics of the bygone ages, would be found remains not only of the inhabitants, but some traces of their dwellings or cities. But there have as yet been found no traces of man, no fragments of his skeleton nor of his constructions, although the bones of man are equally capable of preservation with those of the lower animals, and far less fragile and destructible than the seeds, fruits, flowers, and tender leaves, with other organisms, so wonderfully and minutely preserved.

It has, therefore, been rashly concluded that no such race existed.

But the advocates for a Pre-Adamite man have not been dismayed; no sooner has one discovery—for a time triumphantly proclaimed as undeniable evidence—been set aside, than another is discovered and equally vaunted.

It may be interesting to examine a few of these evidences.

Among the instances of supposed human remains in the older deposits, are the human skeletons in London and Paris brought from Guadaloupe, the remains from Oeningen on the Rhine, marks of feet from Santa Fe in Peru, bones said to be human bones mixed with the osseous remains of animals in caves in Franconia, the South of France, Great Britain, and at Natchez in the United States, and flint hatchets, knives, and arrow heads in different localities.

Of the skeletons from Guadaloupe, says Mr Richardson —"The limestone at Guadaloupe . . . is a recent deposit formed by the following process:—The coral reefs which surround the island are abraded by the incessant action of the waves. The detritus thus produced is drifted to the shore in the state of coralline sand or mud, where, by the action of the atmosphere, or streams holding carbonate of lime in solution, the mass becomes indurated, and forms a compact limestone. It is evident that the rock was in a plastic state when these skeletons were placed in it, and *it is also ascertained that the bones are not fossilized*, but retain their animal matter and phosphate of lime. There is not sufficient evidence as to the mode in which they have been embedded, whether they are the relics of a battle, or were deposited as a mode of sepulture. . . . A skeleton, now in the Museum of Natural History at Paris, was discovered in a sitting position, which is known to be the usual interment posture adopted by the aborigines of these regions."

Of the Oeningen remains, Scheuchzer, a physician who discovered them, insisted "that it contains a moiety, or nearly so, of the skeleton of a man; that the substance, even of the bones, nay, more of the flesh, and of parts still softer than the flesh, are there incorporated in the stone; in a word, that it is one of the rarest relics which we possess of that cursed race which was overwhelmed by the waters." This rare object was, however, dispossessed of its interest by Cuvier, who proved the remains to be that of a huge Salamander.

The markings at Santa Fe, held to be footprints, were carefully examined by Dr Dale Owen, of New Harmony, and proved to have been sculptured by the Aborigines.

The bone caverns which have been discovered in almost every country of Europe, and also in America, are highly interesting as throwing light upon the former condition of the earth, the changes it has undergone, and the nature of some of its animal inhabitants.

These caverns have been found to contain remains of extinct species of hyæna, tiger, bear, elephant, rhinoceros, and hippopotamus, no less than wolves, foxes, horses, oxen, deer, and other animals like existing races, and, in some instances, human bones. But it does not follow that, although some bones have been dragged into these caverns by beasts of prey, all the bones were similarly collected, or that, because some of these animals were Pre-Adamic or even Antedeluvian, all were deposited during the same age; it is possible some may have retired to die, others long after may have fallen into the fissures, or been washed in by the deluvial waters. Again, the femur of the bear may easily be mistaken, according to Professor Owen, for the human thigh bones. Describing Kent's Hole, near Torquay, Dr Mantell says—"The lower part of the cave is filled up to a thickness of twenty feet with reddish sandy loam full of fossil bones. This is covered by a layer of stalagmite, from one to four feet thick, which forms the floor of the cave. Upon this is a slight covering of earthy matter, with here and there patches of charcoal; a few human bones and fragments of coarse ancient pottery have been observed. Upon breaking through the sparry floor, the ossiferous earth is exposed, and *embedded with the fossil bones*, several flint knives, with arrow and spear heads of flint, have been discovered. These stone implements are of the same kind as those found in the tumuli of the early British tribes, and unquestionably belong to the same period." He proceeds to account for these phenomena, and denies that either the implements or the human bones thus discovered in the higher layer of these cavern deposits were necessarily contemporary with the carnivora, whose existence in and about the cave are here indicated by their fossil remains. "More accurate observations," he says, "have rendered it probable that the human remains were introduced at a later period. . . . The bones of people who perished and were buried, or else who sought refuge in these caverns, would become blended with the mud gravel and debris of the animals already entombed; and a stalagmite paste might, in some places, be formed by the infiltration of water, as at *Bize* (Department Aude), and cement the whole into a solid aggregate. In concretionary masses of stone of this kind, containing bones of the bear and other extinct species, human bones, fragments of pottery, *terrestrial shells*, and bones of animals of modern times may therefore be associated."

Of the bone found by Dr Dickeson in undisturbed blue clay at Natchez, no satisfactory evidence as to its being human has yet been afforded.

There remain the flint knives, arrow heads, etc., discovered in various places, and particularly in the valley of the Somme, in France. These have been carefully examined by Sir Charles Lyell and others, for and against the opinion. Great ability has been displayed on both sides, but as yet no definite conclusion has been reached. The genuiness of a human jaw bone found at Abbeville by M. Perthes, and which, for a time, puzzled those who held a contrary opinion, has been sufficiently set at rest by its having been proved a forgery; and as to the flints, it must be evident that great caution, in pronouncing a decisive opinion, must be requisite; the search must extend over larger areas than have hitherto been examined, in order to separate between original locality of deposition and transportation by the elements, or even the hand of Post-diluvian man in preparing a sepulture for the remains of his fellows.

Granting, however, they are human remains, the argument that they are Pre-Adamic is as strong until proved to the contrary, as that they are Post-Adamic.

It is true, the presence of hatchets and arrow heads argues a state of war or the chase, which pre-supposes or includes sin and suffering among the Pre-Adamites, hardly agreeing with our opinion of the then holy state of man as expressed previously.

The existence of the Pre-Adamic races on earth far onwards, mayhap till the close of their sojourn, we maintain was holy and happy. Its close, however, was marked by sin and its concomitants, as we shall see in the farther prosecution of our inquiry.

CHAPTER XVII.

It will scarcely be insisted upon, or even imagined, that Adam was formed possessed of all knowledge; but that rather, being a free agent, and endowed with a progressive mind, he should rise, by active thought and determination of free will, to the station for which he was designed. Under such views, he must have been taught the past history of the world and its inhabitants, and what hostile power, if any existed, it was his duty to guard against.

That such teaching was supplied may be inferred from the command given to him regarding the duty he was to perform in the garden of Eden. He was to "dress and *keep it*." The latter part of the expression argues an opposing and hostile action, which, in fact, was exercised after a time through the medium of the serpent, resulting in the Fall.

It follows, therefore, that an evil power, hostile to God and His works, existed *before* man was formed, and it as surely follows that this power must have been a sentient creature; and that, as the Almighty had created all creatures holy, this being had lapsed into sin, forfeited its destiny, become depraved and antagonistic by an abuse of its privileges and freedom.

The narrative of the fall leaves no doubt of the personality and spirituality of this creature as the prince of the fallen angels. He is in the form of the serpent, cursed as such, and in many other passages of Scripture pointedly as such referred to, as in *Rev.* xii., 9, "the old serpent which deceiveth the *whole* world." *John* viii., 44, Christ calls the devil a "murderer from the beginning," "a liar, and the father of it," since by lying he introduced sin and death into the world—spiritual death through sin among the fallen angels. Again, 1 *John* iii., 8, "He that committeth sin is of the devil; for the devil sinneth from the beginning;" and it is added, to counteract his lies and sin, "For this purpose the Son of God was manifested, that he might destroy the works of the devil;" and there were a second time, through the fall, spiritual and temporal death, inasmuch as the serpent beguiled Eve through his subtilty.

His fall, therefore, must have preceded Adam's entry into the world, and along with him, those angels who took part in his rebellion.

In all probability, as man's estate depended on his freedom and decision, and was settled soon after his creation, so the condition of the angels depended upon their adhesion to, and remaining in, the state of holiness and happiness in which they were created; and their fall took place near or after the close of the age of rest, or the Sabbath.

Personality argues a dwelling in some particular place, hence (*Jude* 6) "The angels which kept not their first estate, but left their own habitation," and (2 *Peter* ii., 4) "God spared not the angels that sinned, but CAST *them* down to hell," is a distinct intimation of their forcible removal from that habitation.

So fearful an occurrence as this unnatural rebellion and its punishment must have produced, or been accompanied by, the effects of righteous displeasure on their principality. Such results followed the punishment of the wicked at the flood, and in the destruction of Sodom and Gomorrah, and such followed the fall of the angels in a state of barrenness and sterility affecting the whole earth, a sad change from its former fertility and beauty.

This condition of the earth is clearly pointed to in *Genesis* ii., 5, where it is described so desolate that no plant of the field was in the earth, and no herb of the field had grown.

Vanquished by the power of God, cast down from their former high position, their habitation rendered desolate, all creatures then existing upon the earth destroyed, —as we shall see when we consider the nature of the judgment,—the rebel discomfited hosts still maintained their wicked position as an opposing power, permitted so to remain, and reserved for their future and individual judgment.

But the great plans of Jehovah were not to be subverted by the acts of any creature, however wicked or powerful. The destroyer banished, the earth was again to be renovated and restored to its pristine glory, a new creation, other inhabitants and lords placed upon it, through whom not only should the unperformed task of the angels be carried out, but, by an arrangement ordained from the beginning, the disturbed harmony of the universe be restored through the Lord Jesus, the works of the evil ones destroyed, and man, against whom the powers of evil were directed, should, through the merits and sufferings of the Saviour, rise triumphant over all, and eventually judge the arch rebel and his associates. 1 *Cor.* vi., 2, 3, "Do ye not know that the saints shall judge the world?" "Know ye not that we shall judge angels?"

The inquiries now naturally arise, What were the punishments of the wicked, rebellious angels? What the rewards of those who retained their holy estate?

Did they suffer death, like the animals, or become disembodied spirits? Where are they? In what position of the universe are their habitations fixed?

These are interesting questions, which, however, cannot be definitely solved. The lights by which we attempt to read the history of the Pre-Adamite race of beings are fitful and dim, but occasionally a gleam breaks upon us, by which we at least grasp a strong probability.

From the teaching of Scriptures, we know that the rebellious are reserved until the final day of judgment for the consummation of their punishment; but that even now, while permitted to do their own work, they are punished by the knowledge that their designs against man will be frustrated.

The position into which man was originally introduced upon earth, *their* birthplace given to him, *their* work put into his hands to finish, equally engaged the attention of the angelic race, good and bad; all eyes were upon him—the former, in joyful anxiety, waiting for and rejoicing as each new development of the scheme of salvation unrolled itself before their eyes in the lapse of time; the latter exerting themselves yet more and more in fiendish opposition, galled, thwarted, and beaten, yet hoping, through despair, for some triumph yet to arise to them. Such is, we are told, the present employment of both. Is there any wonder, then, at the interest displayed by the holy angels in the children of mankind, in their rejoicing in heaven over one soul that repenteth, in their mourning over the lost, or that affairs of earth should occupy so much of their attention?

Can there be anything astonishing in the antipathy of the evil spirits to man, when we consider their mental state, their claims on earth rendered invalid, all that remains to them eternal punishment, their envy and malice at man's salvation, and his eternal reward in habitations which might have been their homes?

The rewards of the righteous angels are the favour of God and the happiness flowing therefrom, while the punishment of the rebellious are His displeasure, with its necessary consequences. The conclusion, therefore, we arrive at is that temporal death has not fallen upon the Pre-Adamite man. It is therefore of no avail to search for their graves or remains. What has, therefore, come of their bodies?

As regards the evil angels, we have indications in Scripture that they have been disembodied; and, while they have power to wander over the earth, their habitations are dark, dreary, and dismal, perhaps in some desolate member of the planetary system. That they long to be clothed in some form, we may gather from their anxiety to occupy any fleshly covering. We are told of the Prince Rebel contending with the Arch Angel, Michael, for the body of Moses, of the numerous fiends cast out of human beings by Christ and his Apostles, and of their entreaty to be allowed to occupy even the bodies of swine.

On the other hand, the Scriptures teem with pictures of the happiness, holiness, and employments of the Holy Angels. The heavens—and, therefore, those innumerable worlds constituting the heavens—are said to be their abodes, where, as messengers and servants of the Most High, they execute His will, and praise His glory and majesty.

The manner of their removal from this world to these planetary spheres, and the nature of their bodies, may be gathered from analogy, and from the information supplied by the Apostle :—

> 1 *Cor.* xv., 50 Now this I say, brethren, that flesh and blood cannot inherit the kingdom of God; neither doth corruption inherit incorruption.
>
> 51 Behold, I shew you a mystery; We shall not all sleep, but we shall all be changed, .
>
> 52 In a moment, in the twinkling of an eye, at the last trump: for the trumpet shall sound, and the dead shall be raised incorruptible, and we shall be changed.
>
> 53 For this corruptible must put on incorruption, and this mortal *must* put on immortality.

One point connected with the Pre-Adamite, or, according to our opinions, here presented in all diffidence, the angels, is their sexual difference.

No one, it will be said, has ever read, or heard, or seen a female angel; and our Lord's reply to the Sadducees may be quoted :—*Mark* xii., 25, "For when they shall rise from the dead, they neither marry, nor are given in marriage; but are as the angels which are in heaven." It is not asserted that in heaven there exists any distinction of sex, nor that there are female angels; but it is asserted, beyond a doubt, that there are male and female saints on earth, and that, "When they rise from the dead," they shall be as the angels—without distinction of sex.

When God created the Pre-Adamite race, He did so "male and female." Is there anything more wonderful that, at the translation of the holy angels to heaven, their sexual distinction was abolished, than at the same distinction being abolished at the rising of the saints from the dead? We think not; and the objection becomes pointless.

The state of ruin into which the earth was plunged on the fall of the angels, and existing at the creation of Adam, has been alluded to. The information is given us in the fifth verse of the second chapter of Genesis. As translated in our versions, the meaning is not clearly brought out; indeed, as it stands, only a very hazy idea of the ruined state of the world is conveyed, something, however, very different from that glorious condition which formerly prevailed. The confusion arises from the misunderstanding of the adverb *before* which should be *not yet*. This supplied, the verse will read "And every plant of the field was not yet in the earth, and every herb of the field had not yet grown: for (it is added as a reason) the Lord God had not caused it to rain upon the earth, and *there was* not a man to till the ground."

That this forlorn and lifeless condition of the world existed, Geology clearly teaches.

Under the term diluvium or drift, there occur, about the termination of the tertiary era, vast accumulations of diversified deposits, gravel, sand, clay, and boulder rocks, widely spread over the earth, and occurring in valleys, or plains, or mountain tops, without any apparent regularity. They are distinguishable from the older tertiary deposits by their confused aggregation and unstratified character, and their occurrence at every altitude on mountains.

In many cases, the materials of which they are composed have been traced to rocks only a few miles distant, judging from the same mineral characters; but, in others, they have been traced to rocks at a great distance, even to mountains in other countries now separated by seas.

Some have hastily come to the conclusion that these travelled materials, and the drift generally, were due to the action of water, hence the Noachian deluge was supposed to be the only and most fitting solution of the time and means of the transportation.

But further examination of the drift and its attendant circumstances soon demonstrated this conclusion to be hasty and incorrect; and it is now agreed, by Geologists, that the action took place *before* man's existence on the globe, and that both water and ice have been concerned in producing the phenomena.

It has been agreed upon by many, that a powerful subaqueous elevation took place repeatedly in the polar regions, driving the Northern Ocean southwards, bearing on its bosom masses of ice-blocks and detritus, which invaded what is now the dry land, and spread over it masses of debris and boulders. The grinding motion of the icebergs, striating and marking the rocks over which they passed, has left its traces. In such a condition of things, a general destruction of organic life took place over the submerged land, or, where it was not submerged, from a sudden reduction of the temperature by the intense and all pervading cold which accompanied such icy masses.

The transporting power of icebergs is well known, and has been formerly noticed. Were the North Atlantic sea bottom laid bare, it would be found covered with erratic blocks, borne from the shores of Greenland and Spitzbergen, carried thither in the embrace of icebergs by ocean currents, and dropped as they melted away under the influence of warmer temperature in the sea and air. The size of some travelled blocks is enormous. The pedestal of the statue of Peter the Great, at St. Petersburg, was an insulated granite mass found in a swamp, and originally weighed 1500 tons. The Needle mountain in Dauphiny is 1000 paces in circumference at the top, and 2000 at the base—one single erratic block. The rock in Horeb, from which, according to Monkish tradition, Moses miraculously drew water, is an erratic mass of syenitic granite, containing 5823 cubic feet, lying insulated on a plain near Mount Sinai.

Among the organic remains of the drifted clays or gravels are found few, if any, of the animals of the Adamic era; but, instead, the skeletons of colossal herbivorous mammalia occur in great profusion, such as the elephant and mastodon—animals furnished with a flexible tube—the rhinoceros, the hippopotamus, the megatherium and megalonyx, the sivatherium, the horse, and the gigantic horned elk. There is good reason for ranking along with these the deposits found in the osseous caverns, which have formed such ground for the ingenuity of Geologists.

No traces of man, or of his works, have been found in any formation so antique as the drift deposits, which are the tombs of these quadrupeds, even in Armenia, the supposed home of the human race destroyed by the deluge.

In reference to the drift as being effect of the Noachian flood, Professor Hitchcock says—"The agency producing drift must have operated during a vastly longer period than the three hundred and eighty days of Noah's deluge. It would be easy to show to a Geologist, that the extensive erosions which are referrible to that agency, and the huge masses of detritus which have been the result, must have demanded decades and even centuries, of years. Nor will any supposed increase of power in the agency explain the results, without admitting a long period for their action." And "This theory requires us to admit that, in three hundred and eighty days, the waters of the deluge deposited rocks, at least six miles in thickness, over half or two thirds of our existing continents; and these rocks made up of hundreds of thick beds exceedingly unlike one another in composition and organic contents." Will any reasonable man believe this to be possible without a miracle?

The glacial era, thus described, clearly and sufficiently supplies an explanation and commentary on the opening verse of the narrative of the formation of Adam, and the introduction upon the earth of the human race, and supplies a picture of desolation, beyond which nothing could be conceived more complete, viz., the state of the earth consequent upon the sin and fall of the rebellious angels, and from which were translated, to the glorious homes of the heavens, the Sons of God.

CONCLUSION.

SUCH are the Testimonies borne by the Stony Records to the inspiration and truth of the Scriptures, and such the evidence regarding the Pre-Adamite man, humbly offered to the consideration of the inquiring mind, and, it may be, to the farther elucidation of the subject by others more competent. Such are the Lights shed on the Divine plans, and such the more luminous views of the Divine character afforded by the assistance of Geology.

While ignorance imagines all nature in a state of decay, Geology teaches that the changes which have occurred in the earth in the past are only tendencies to a more glorious transformation in the future, and, by analogy, admits of no evidence for the annihilation of the universe; but rather, by another and wonderful change, that it will become the theatre for yet more astonishing displays of Divine wisdom and benevolence. It teaches that matter, while it has passed through many changes, has been trodden by a multitude of organisms unlike each other, and yet connected in one bond of unity by some link of the great chain:—each succeeding race becoming more and more perfect, until it culminates in that form made after the likeness of the Creator. And, if our views are correct, it sheds a clearer light upon the creation of the angelic race, and on that most wonderful, most gracious condescension which, passing by the holy angels, hath chosen us and raised us from sin and misery eternal, to be a "chosen generation, a royal priesthood, an holy nation, a peculiar people, that we should shew forth the praises of Him who hath called us out of darkness unto his marvellous light."

Are any still suspicious of the teachings of Geology? Is there still a lingering dread that its views are in opposition to, or subversive of, revelation? We hope not; and that though conclusions are presented more extended far than some minds have hitherto contemplated, they are still desirous to cramp, still afraid to liberalize their ideas.

Such fears formerly opposed astronomical truths; but now, astronomy, it has been universally admitted, illustrates revelation. In the same way, Geology is the illustrator of religion, and, rightly understood, will be as anxiously cultivated as an auxiliary to Theology, as hitherto it has been feared.

It has been said of this, as of astronomy, that the time is near at hand when it will become an axiom "That the undevout Geologist is mad."

Dr Buckland truly remarks—"Shall it any longer be said that a science, which unfolds such abundant evidence of the being and attributes of God, can reasonably be viewed in any other light than as the efficient auxiliary and handmaid of religion? Some few there still may be whom timidity, or prejudice, or want of opportunity allow not to examine its evidence; who are alarmed by the novelty, or surprised by the magnitude and extent of the views which geology forces on their attention; and who would rather have kept closed the volume of witness which has been sealed up for ages beneath the surface of the earth, than impose on the student in natural theology the duty of studying its contents—a duty in which, for lack of experience, they may anticipate a hazardous or laborious task, but which, by those engaged in it, is found to be a rational, and righteous, and delightful exercise of the highest faculties, in multiplying the evidence of the existence, and attributes, and providence of God. The alarm, however, which was excited by the novelty of its first discoveries, has well nigh passed away; and those to whom it has been permitted to be the humble instruments of their promulgation, and who have steadily persevered under the firm conviction that 'truth can never be opposed to truth,' and that the works of God, when rightly understood, and viewed in their true relations and from a right position, would at length be found to be in perfect accordance with His word, are now receiving their high reward in finding difficulties vanish, objections gradually withdrawn, and in seeing the evidences of Geology admitted into the list of witnesses to the truth of the great fundamental doctrines of theology."

It is time, indeed, that a thorough reconciliation should be established between Religion and Science. Religion ought to court support and illustrations from the investigations of Philosophy; while Science ought to count it a high honour to follow in the train of that revelation which points out and leads the way to eternal happiness.

If the material world and the Christian revelation derive their origin from the same Almighty Author, there can be no inconsistencies; and, if apparent contradictions arise, they do so because one or both are made to speak in an unnatural language, tinged with the false colours of contracted vision or party opinions.

In illustrating the Mosaic Cosmogony, as we have attempted to do, there are the impressions and imaginative views of our early years and education to overcome. These have grown with our growth, and strengthened with our strength, until they have become so firmly rooted that it is difficult to realize quickly and clearly the enlarged vista presented to our gaze, by pruning and cutting down here and there some giant error in full bloom, which keeps out the full blaze of light and shades the ground.

Many, in reading the first two chapters of Genesis, have arrived at something like the following ideas, and these, without further question, they have retained as facts. "First, a wild primitive sea of chaos, tossing in unruly agitation, then suddenly, at the same voice which rebuked the winds and the sea, there was a great calm—a new condition of order and beauty from which immediately arose the beauteous and orderly frame of the earth—light, for the first time, sprang out of darkness—the shades of evening gave place to the first dawn of morning, and the day appeared. On the following days, by a similar process, both vegetable and animal life was first called into existence; fruits and vegetables were the earliest products; then, after two days' interval, birds, fishes; then again, cattle and creeping things, and beasts of the earth after their kind, till we come, on the sixth day, to man himself. The interval of the fourth day is occupied by the creation of the sun, moon, and planets, and of all the stars of heaven.

"Such might be, and often is, imagined to be the opening scene in Genesis. But now, so far from all things having sprung from a primitive chaos of boisterous and jarring elements, science will tell us that no sooner was matter created than it was subject to general laws, by the gradual operation of which successive changes took place."

In reference to the antiquity of the earth and the meaning attached to the six creative days as periods of time, it is hoped the arguments adduced are conclusive; "But why," in the language of Dr Dick, "should the idea of the high antiquity of the earth frighten any persons from acquiescing in it, when it is not in the least repugnant to the declarations of Scripture? So far from contracting or distorting our views of the Divine perfections, it tends to expand our conceptions of the plans and operations of the Deity. If periods of duration almost too great for human powers to estimate have been employed since the original creation of our globe to bring it to its present state—if vast successive revolutions, at different eras, have taken place upon its surface—if the waters of the mighty deep have, at different periods, overflowed the solid land—if the place where we now stand was once a portion of the bottom of the ocean over which its mighty billows for ages had rolled—if subterraneous fires have, at different periods, raised up from the bottom of the deep those huge mountains which now lift their summits to the clouds—if lofty mountains have been sunk down many thousand feet below their ancient level so as to form deep valleys, or the bottom of the seas—if the Almighty, after creating the matter of our globe, impressed certain laws upon its elementary substances, and left these laws to operate as they now do, with only occasional interferences—if races of animated beings have occupied the globe for myriads of ages—if new races have been created at different periods, and subsequently destroyed—or if numerous orders of intelligent existence may have occupied the surface of the globe ages before man was introduced to this terrestrial scene—if tremendous convulsions have shaken the firm foundations of the earth—in short, if by all the processes to which we have alluded our globe was gradually prepared for the purposes it now fulfils, and that the Creator chose to employ these rather than the special interposition of miraculous power—such considerations tend to exhibit the power, wisdom, and benevolence of the Deity in a new point of view, and to enlarge our conceptions of the magnificent plans of Him who is 'The King eternal, immortal, and invisible,' who is 'wonderful in counsel, and excellent in working." We are here shown that the space which has intervened between the present time and the period when man was first placed upon the globe, is but one of the units of a vast series of chronological periods which have gone before and which stretch backwards into the abyss of immeasurable duration. It is but a single link of the great chain which stretches from the moment when matter first arose from nothing to diversify the wilds of immensity, down to the hour which is now passing over us. And who knows but that the system of the globe with which we are presently connected may be but one link in an interminable series of events connected with other orders of intelligences, which will be unfolded during the revolutions of a coming eternity.

The views presented in the foregoing pages regarding the Pre-Adamic races, and their identity with the angels, will no doubt startle many zealous minds. They need not do so; but, instead, exalt their admiration and call forth their gratitude to Him who for us is "The Lamb slain from the foundation of the world," who took not on Himself the nature of angels," but who gave Himself a ransom for us.

The light thrown upon the Angelic Creation, dim though it may be, is still light upon a most interesting and important subject, in its bearing upon the origin, present condition, and ultimate destiny of the human race.

Some there may be, perhaps many, who may scout the views presented; but there may be some who, aware that there is nothing contradicting them in the Scriptures and very much in their favour, will deal with them fairly and honestly, mayhap, fully realize their soundness and tendency.

It is not a mere matter of taste, or the gratification of a fancy, for speculative inquiry; but an imperative duty on the part of every one of God's intelligent offspring to direct his whole powers to the consideration of such and kindred subjects. Some there may be who treat these with indifference, nay with undisguised contempt; but the Christian feels differently, and knowing that God is truth, and that His word declares "Because they regard not the works of Jehovah, neither consider the operations of His hands, He will destroy them and not build them up," will carefully avoid, by wilful neglect, the judgment so plainly threatened.

If such inquiries are conducted in a humble and devotional spirit, with earnestness and perseverance, every doubt and difficulty will vanish, which formerly clouded the mind, like the shades of night before the brightening beams of the glorious sun. "If thou criest after knowledge, *and* liftest up thy voice for understanding; if thou seekest her as silver, and searchest for her as *for* hid treasures; then shalt thou understand the fear of the Lord, and find the knowledge of God. For the Lord giveth wisdom: out of his mouth *cometh* knowledge and understanding." "In all thy ways acknowledge him, and he shall direct thy paths." "Then shall thy light rise in obscurity, and thy darkness *be* as the noonday."

Science is, in effect and reality, an inquiry after God; but, if in His wisdom, there be many points which He hath seen fit to hide from mortal eyes, let us remember there is still another state of existence in which our studies still being there prosecuted will result in yet clearer views of the plans and works of our Divine Creator.

What, though this world undergo purification by fire, we have a sure and certain hope that our immortal souls shall

> "Flourish in immortal youth,
> Unhurt amidst the war of elements,
> The wreck of matter, and the crash of worlds!"

and that in other homes, the glories of which are to us inconceivable, in the companionship of intelligences transcending far the highest on earth, taught by the unerring teacher, the Lord Jesus Christ, we shall, instead of at best contemplating, as on earth, the shadow, behold the perfections of the Almighty.

As prisoners of hope, we lift up our longing eyes to these happy mansions where, in His good time, we may, through the merits of the Lamb that was slain, come "unto Mount Sion and unto the city of the living God, the heavenly Jerusalem, and to an innumerable company of angels, to the general assembly and church of the first born which are written in heaven, and to God, the Judge of all, and to the spirits of just men made perfect, and to Jesus, the Mediator of the new covenant, and to the blood of sprinkling which speaketh better things than that of Abel."

THE END.

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